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A CLINICAL CONTRIBUTION ON INTERNAL AND EXTERNAL MIGRATION OF THE OVUM AND THE IMPORTANCE OF EXCISING THE INTRA-MURAL PORTION OF THE FALLOPIAN TUBE IN THE OPERATION OF SALPINGECTOMY.[1]

By HERBERT H. SCHLINK, M.B., Ch.M. (Sydney),
Honorary Gynæcological Surgeon, Royal Prince Alfred Hospital, Sydney.

THE study of the passage of fertilized ova from the Graafian follicles to their final resting places: (*a*) In the uterus in the case of intra-uterine pregnancy; (b) in the tube in that of extra-uterine gestation, presents many interesting problems of external and internal wandering of the ovum and in the histories recorded later shows the necessity for thorough excision of the intra-mural portion of the Fallopian tube in the performance of salpingectomy in order to avoid the possibility of serious or even fatal subsequent interstitial or ectopic gestation.

The migration of the ovum has been well demonstrated in the case of swine by George W. Corner.(1) The sow in virtue of her long tubular bi-cornuate uterus especially lends herself to the investigation of the subject of migration of the ovum.

Corner selected twenty-six sows which by the appearance of their ovaries had ovulated within the previous three days and so ensured that the ova would be *en route* through the Fallopian tubes. By carefully washing out each tube he was able to recover all the ova and proved that the number in each tube corresponded to the number of discharged follicles or *corpora lutea* in its corresponding ovary.(2)

He next observed in the examination of five hundred pregnant sows that in about one-third of the animals one horn of the pregnant bi-cornuate uterus contained more embryos, the other less than the number of *corpora lutea* or discharged follicles in the corresponding ovary.(2)

To cite one example of the hundreds available, it was found in a certain sow (see Figure I.) that the left ovary contained seven recent *corpora lutea,* the right two; the left uterine cornu contained four fœtuses and the right five. Three embryos in the right cornu had originated therefore in the left ovary.

Thus, having first shown that the ovum coming from each ovary enters the tube on its own side or in other words, that the number in each tube equalled the number of discharged follicles or *cor-*

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on April 24, 1924.

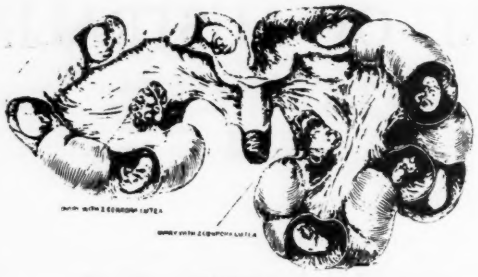

FIGURE I.
Ovaries and Uterus of Pregnant Sow in which Migration has Occurred. Seven *Corpora Lutea* in Left Ovary, Two in Right Ovary; Four Fœtuses in Left Cornu, Five in Right Cornu. (After Corner.)

pora lutea in its corresponding ovary, and having then observed that the number of embryos in each horn differed from the number of *corpora lutea* in its corresponding ovary, he was able to prove the internal migration of the fertilized ovum from one horn to the other horn of the bi-cornuate uterus.

He states that the reason for this migration is physiological, so that the individual embryos of the large litters shall be given a fair share of space in the uterine cavity. And we can see the force of his hypothesis in the first case cited. If internal migration did not take place, one horn would have to accommodate seven growing pigs while the other only two. He also asserts that migration in swine is always internal and never external, that is to say that an egg discharged from a given ovary never passes through the abdominal ostium of the opposite tube.[3]

On the other hand, Kussmaul (1859) pointed out that in man and animals such as the rabbit or cat in which the tubal extremities open freely into the abdominal cavity, there are two possible pathways of migration.[4] In the first place the ova may travel by way of the homo-lateral tube into the uterus and hence to the place of implantation in the contra-lateral cornu in the case of bi-cornuate uteri instanced by Corner in swine or into the contra-lateral Fallopian tube or intra-mural stump of it

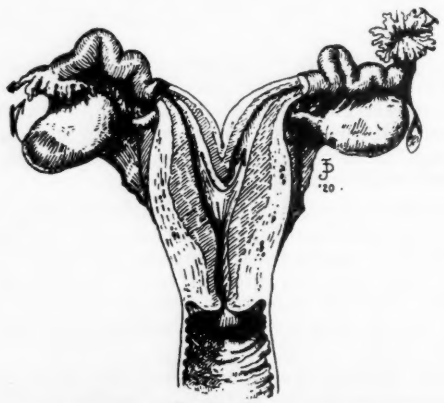

FIGURE II.
Illustrating Internal Migration in a Bi-Cornuate Uterus. (After Corner.)

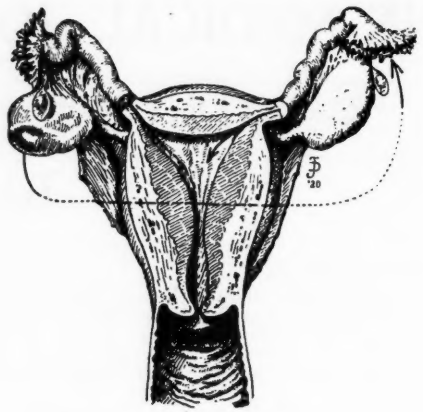

FIGURE III.
Illustrating External Migration.
(After Corner.)

in cases in which a salpingectomy has been imperfectly performed. This is instanced by Andrews's case[5] and Number II. and Number III. of the appended series (Internal Migration, see Figure II.). In the second place the ova may pass from the ovary into the abdominal cavity and hence directly into the opposite tube by the action of the ciliated lining and possibly by peristaltic movements of the Fallopian tubes which produce currents in the films of abdominal fluid between the pelvic organs and draw them into the open ostia, as instanced in Kelly and Winkler's cases and Number I. and Number III. of this series (External Migration, see Figure III.).

In the case of the human subject migration has been frequently observed, for it has many times been noted in tubal pregnancies that the *corpus luteum* has been found in the ovary opposite to the pregnant tube. Williams in 1917 reported an especially convincing case of this type.[6]

In the human uterus, however, with its single cavity migration of the ovum can be demonstrated only under exceptional conditions.

Kelly[7] (1906) and Winckler[8] (1905) reported definite cases of external migration in each of which one ovary and the opposite tube had been removed, but nevertheless the patients subsequently became pregnant. Number I. of the cases on which this

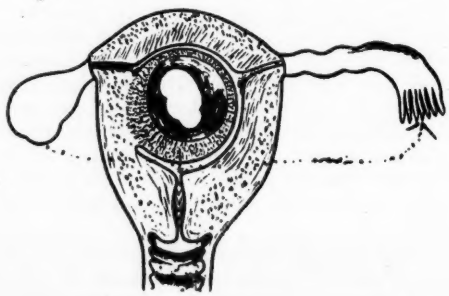

FIGURE IV.
Case I. of Series, Illustrating External Migration.

paper is founded, is also a definite instance of external migration. We operated upon this patient for a ruptured tubal gestation, the pregnant tube

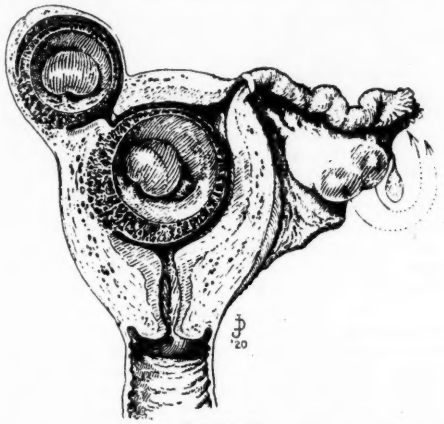

FIGURE V.
Illustrating Andrews's Case of Twin Pregnancy.
(After Corner.)

and the opposite ovary which showed advanced cystic degeneration were removed, the patient had three subsequent normal uterine pregnancies. The patient was later reopened for another condition and Burckhard's contention that recurring patency of the stump of the removed tube might allow the short or direct entrance of the fertilized ovum to the uterine cavity was proved not to be correct in this particular instance, for the site of the excised tube was perfectly covered by smooth peritoneum and there were no signs of fistula or recurring patency of the old stump. This is, to my mind, an absolute case of proof of external migration through the opposite tube (see Figure IV.).

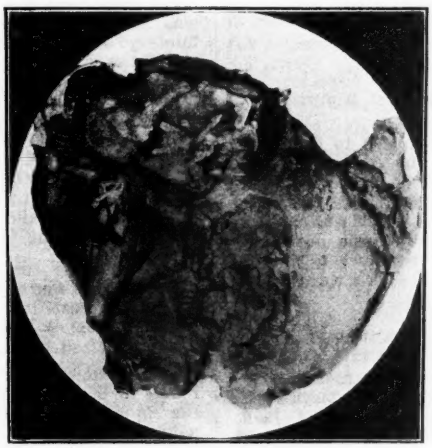

FIGURE VI.
Illustrating Specimen of Edye's Case with Fœtus in Intra-Mural Portion of Tube left after Incomplete Salpingectomy.

Leopold (1880) gave experimental evidence of external migration when by excising one tube and the opposite ovary in rabbits he found the animals still capable of bearing young.[9] But until Andrews reported his case (1912-1913) there was no conclusive evidence, clinical or experimental, to show that internal migration occurred in the human subject.[5] Andrews published the report of a case of interstitial pregnancy in the right side of a woman whose right tube and ovary were absent. The interstitial pregnancy could be opened without opening the uterine cavity which contained a normally implanted twin embryo (see Figure V.).

Edye's case Number II. of the appended series is an additional piece of evidence that internal migration occurs in man. In this case the right tube and ovary had been previously removed, but the intra-mural portion of the tube was left undisturbed and ectopic gestation occurred in this blind tubal *cul-de-sac* and ended fatally. The fertilized ovum, discharged from its follicle in the left ovary, had travelled through the left homo-lateral tube across the uterine cavity to the intra-mural portion of the contra-lateral tube on which an incomplete salpingectomy had been performed (see Figure VI.).

Case Number III. of the appended series is an example of combined external and internal migration. In this case I had removed at a previous operation the right tube and left ovary and being at an early stage of my operating career, I had failed to remove completely the tube leaving behind the intra-mural or muscular portion. The patient subsequently had an interstitial ectopic gestation in the blind stump of the right tube. The ovum, discharged from its follicle in the right ovary, had made its way across the abdomen into the ostium of the contra-lateral or left tube (external migration), had travelled along the left tube across the uterine cavity and found an implantation in the blind interstitial stump of the removed homo-lateral tube (internal migration). Thus, in this case we have both examples of wandering demonstrated (see Figure VII.).

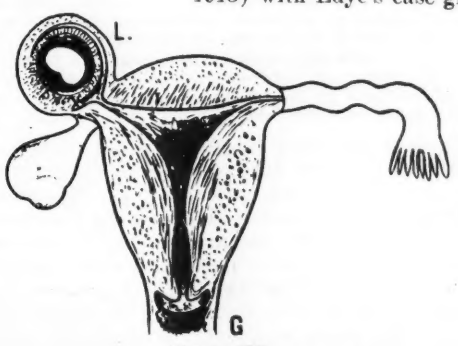

FIGURE VII.
Illustrating both Internal and External Migration.

Summary.

1. Corner, in the papers (1915 and 1921) proves the occurrence of internal migration in swine.

2. The cases reported by Kelly (1906), Winckler (1905) and Number I. of this series together with the experimental work of Leopold on rabbits (1880) demonstrate fully external migration of the ovum in man and animals, having their tubal extremities opening freely into the abdominal cavity.

3. Andrews's case (1912-1913) with Edye's case gives

convincing clinical evidence of internal migration in the human subject.

4. Case III. of this series affords convincing clinical evidence of both forms of migration happening in the same subject.

Conclusions.

From a review of all this evidence we may take it that the occurrence of both internal and external wandering of the fertilized ovum is proved from the clinical point of view. Mayrhofer (1876) considered migration of the ovum in the human subject to occur at least once in ten ovulations.

Apart from the question of migration, I trust the practical aspect of this paper will not be lost sight of, for Andrews's case and Number II. and Number III. of this series prove the great necessity for gynæcologists to recognize the importance of removing the entire intra-mural or muscular section of the Fallopian tubes when performing salpingectomy. This must be done if they desire to avoid not only the occurrence of serious cases of ectopic gestation as instanced in the above three patients, but also to prevent the development of interstitial abscesses in any subsequent infective process that might arise.

Case Reports and Comments.

Case I. (Schlink): Illustrating External Migration of the Ovum.

C.D., aged twenty-five years, was admitted to the Royal Prince Alfred Hospital on July 14, 1916, for sudden pain and bleeding *per vaginam*. She had had three children and three miscarriages. The youngest child was aged one year and nine months and the last miscarriage had occured four months previously. A diagnosis of ectopic gestation was made and operation revealed a leaking ectopic gestation with the ovum half expressed through abdominal ostium of tube on the left side and an ovarian cyst the size of an apple on the right side. The left pregnant tube and the right ovary with cyst were removed. The patient was discharged on August 4, 1916.

Subsequent pregnancies were as follows: A child born on June 26, 1918; a child born on November 14, 1918; a miscarriage of a three months fœtus on October 4, 1920; a child born on March 30, 1921; a child born on January 11, 1923.

The patient was admitted on October 9, 1923, suffering from retroversion of the uterus and umbilical hernia as well as a small ventral hernia through the old incision. An operation was performed during the course of which the site where the left tube had been removed for ectopic gestation in 1916 was thoroughly inspected. There was no sign whatever of recurring patency or fistula, the peritoneum covering the excised intra-mural portion of the tube was smooth and intact. And so the ova coming from the left ovary, the only one present, could only have gained entrance to the uterine cavity through the ostium of the opposite right tube, the only one present.

There is therefore absolute proof that on five occasions between 1918 and 1923 (four full-time pregnancies and one miscarriage), the fertilized ovum travelled by external migration from the left ovary across to the entrance of right tube and so on to the uterus. This particular case cannot possibly be explained as Burckhard suggested, by the recurring patency of the stump or fistula at the site of the tube's removal. It must be taken as absolute evidence of external migration in the human subject.

Case II. (Edye): Ruptured Interstitial Ectopic Gestation, Illustrating Internal Migration of the Ovum.

Mrs. W. McW., aged thirty-seven years, was admitted to the Royal Prince Alfred Hospital on April 30, 1923, at 9.15 p.m. Patient went to bed quite well the night before admission and at 2 a.m. she woke with severe pain in the right hypochondriac region. The pain increased and spread over the abdomen and was accompanied by vomiting. About mid-day an enema was given and repeated without flatus or fæces being passed. Her condition suggested intestinal obstruction. There had been no previous attacks of pain, but occasionally the patient suffered from slight flatulent dyspepsia. The last menstrual period occurred about February 12 and the patient considered herself to be in the third or fourth month of pregnancy. There was no vaginal hæmorrhage or discharge. Three years previously by operation the right tube and ovary had been removed and the uterus was suspended by fixing the right round ligament to the anterior abdominal wall.

When admitted her temperature was 38° C. (100.4° F.), her pulse rate was one hundred and twenty and her respirations numbered thirty-two in the minute. She complained of pain principally in the right upper quadrant of the abdomen. Another enema was administered with a small constipated result. About half an hour afterwards her condition became rapidly worse and when I first saw her she showed signs of extreme collapse. Her temperature was 35° C. (97° F.), her respirations numbered forty and her pulse was almost imperceptible, she was restless and was vomiting small quantities of clear fluid. The abdomen was distended and tender, but rigidity was not marked. The tenderness appeared to be most evident in the epigastrium where there was definite resistance and bulging. There was dulness in the flanks. *Per vaginam* it was possible to map out the uterus which reached three-quarters of the distance from the pubes to the umbilicus. It appeared to be regular in shape and corresponded to a three or four months' pregnancy, there was tenderness but no special bulging or tumour to be felt in the fornices and there was no vaginal hæmorrhage, there was nothing abnormal in the urine.

In discussing the diagnosis ruptured ectopic gestation was ruled out and a provisional diagnosis of acute hæmorrhagic pancreatitis was made, but the patient's condition was so extremely bad that no operation could be attempted. The patient died at 4.40 a.m., May 1, 1923.

At *post mortem* examination the abdominal cavity was found to be filled with blood. The uterus was pulled to the right by the round ligament which was thickened and adherent to the abdominal wall, it was large and soft and continuous with a mass in the right cornu the size of a small orange. This mass showed a large irregular perforation through which chorionic villi were protruding and it contained a sac filled with amniotic fluid in which was suspended a three or four months' embryo. A loop of small intestine was adherent to the wall of the ectopic gestation adjacent to the *fundus uteri*, at the point of perforation the coverings consisted merely of peritoneum and a little fibro-cellular tissue. The rupture was probably due to the tension following the opening of a large blood vessel by the erosive action of the chorionic villi.

The intact amniotic sac suggested that the fœtus was still alive when the rupture of the maternal coverings took place and this may account for the absence of hæmorrhage.

As in the case reported by Andrews the ovary and tube except for the intramural portion, had been previously excised. The ovum escaping from its follicle on the left ovary travelled through the homolateral or left tube across the uterine cavity to become implanted in muscular stump of the right or contra-lateral tube and as development proceeded expansion took place in the direction of least resistance, *videlicet* towards the abdominal cavity from

which it was separated by only peritoneum and a thin layer of fibro-cellular tissue. This is a clear case of internal migration of the fertilized ovum.

Case III. (Schlink): Ruptured Interstitial Ectopic Gestation, Illustrating Both External and Internal Migration of the Ovum.

N.J.C. was admitted to the Royal Prince Alfred Hospital on October 22, 1913, for incomplete abortion, the uterus was curetted and flushed out by the resident and after a week she was discharged with a normal temperature or pulse.

Six weeks later, on December 12, 1913, she was admitted for pelvic inflammation and laparotomy was performed.

Both tubes were found to be inflamed and the left occluded with its corresponding ovary bound down in Douglas's pouch. The right, although inflamed, was patent and no pus could be expressed upon gentle milking. The right ovary was degenerated and cystic. A left salpingectomy was performed, but the intra-mural part of the tube was not excised. The left ovary upon being freed was found to be healthy and was conserved. The right ovary was excised and the right tube left *in situ*. The appendix was removed. The patient made an uninterrupted recovery.

Two years later on March 5, 1916, the patient was admitted in a collapsed and exsanguinated condition with a history of sudden pain in the lower part of the abdomen and fainting, but no amenorrhœa. Never before have I seen a patient so blanched, the abdomen was greatly distended and dull in flanks and *per vaginam* the uterus was found to be enlarged and fluid could be felt in Douglas's pouch.

Upon opening the peritoneum there was a deluge of fluid blood and the patient almost expired under the anæsthetic. With rapidity the uterus was brought up into the wound and displayed a large irregular rent in the position of the cut off stump of the left tube. The ragged edges were trimmed quickly and deep sutures of catgut were inserted in hæmostatic fashion and the peritoneum sewn over. The condition of the patient was so desperate that as much blood as possible was quickly soaked up and the abdomen closed. No fœtus was found in blood or clot. The patient recovered.

Four months later the patient complained of pelvic pain. The abdomen was opened, the diseased and adherent right tube was removed and the uterus ventrofixed. There had been no time to attend to this at the previous operation on account of the desperate condition of the patient, due to the unusually large loss of blood.

It is more than likely that this patient had a mild infection at the time of incomplete abortion which ascended and six weeks later gave rise to the subacute pelvic inflammation and ovarian degeneration found at the first laparotomy, when the right ovary and left tube were removed and being one of my early cases I failed to remove completely the intra-mural portion of the left tube.

The fertilization of the ovum and its journey to its final resting place presents a curious and interesting problem. It could reach its implantation site in the inner unremoved intra-mural portion of the left tube by either: (i.) A long journey across the abdomen to the opening of the right tube (external migration) and then along the Fallopian canal, across uterine fundus to its final resting place, the unremoved intra-mural portion of the left tube (internal migration); or (ii.) by a short way through a small sinus leading from the sewn-over surface of the removed tube to the inner unremoved intra-mural portion.

My own opinion is that the ovum after escaping from its Graafian follicle on the left side made its way across the back of the uterus encouraged by the currents set up by the muscular action of the Fallopian tube and its fibria on the right side, there became fertilized and continued on its way to the uterine cavity and, seeking a quiet place for implantation and growth, crept into the small *cul-de-sac* of endometrial mucous membrane formed by the unremoved intra-mural portion of the left Fallopian tube. It there continued to grow and its chorionic villi eroded their way through the less resisting mucous membrane of the tube, until it eventually, aided by the embryo's increase in size, cut its way through or burst the thin overlying layer of muscle and peritoneum separating it from the abdominal cavity. The rupture into the peritoneal cavity gave rise to the almost fatal intra-peritoneal hæmorrhage. The excessive bleeding in the case of this ectopic gestation and in Dr. Edye's patient is due to the fact that the implantation site in the muscular tissues of the uterus means a more liberal source of blood than the less-blood-supplied musculature of the tubes which are the usual sites for ectopic implantation and rupture.

Burckhard[10] (1904) considers that recurring patency of the interstitial part of the excised tube to be most likely, but examination at the second operation in Case Number I. of this series showed it was not so and as we did both by the same technique, we can assume that there was no sinus or fistula in the case under consideration.

References.

(1) G. W. Corner: "Internal Migration of the Ovum," *The Johns Hopkins Hospital Bulletin*, March, 1921.

(2) G. W. Corner: "The Corpus Luteum of Pregnancy, As it is in Swine," Publication Number 222 (Contributions to Embryology, Number 5), of the Carnegie Institution of Washington, 1915.

(3) G. W. Corner and A. E. Amsbaugh: "Œstrus and Ovulation in Swine," *Anatomical Record*, 1917, Volume XII., Page 287.

(4) A. Kussmaul: "*Von dem Mangel, der Verkummerung und Verdoppelung der Gebarmutter und der Ueberwanderung des Eies*," Wurzburg, 1859 (quoted by Williams, 1917).

(5) H. R. Andrews: "A Case of Simultaneous Intra-Uterine and Extra-Uterine Pregnancy, with Probable 'Internal Wandering' of the Ovum," *Proceedings of the Royal Society of Medicine*, London, 1912-1913, Section of Obstetrics and Gynæcology, page 52.

(6) J. Whitridge Williams: "Obstetrics," 1917, Chapter III.

(7) H. A. Kelly: "Operative Gynæcology," Second Edition, 1906, Volume II., page 185.

(8) V. Winckler: "*Ein Fall von Ueberwanderung des Menschlichen Eies*," *Verhandlungen deutsche, pathologische Gesellschaft*, 1905, Jena, *Band* VIII., *Seite* 177 (quoted by Corner).

(9) G. Leopold: "*Die Ueberwanderung der Eier*," *Archiv für Gynäkologie*, 1880, *Band* XVI., *Seite* 22-24 (quoted by Corner).

(10) G. Burckhard: "*Ist eine innere und aussere Ueberwanderung des Eies möglich?*" *Zeitschrift für Geburtshilfe und Gynäkologie*, *Band* LIV., *Seite* 470-484.

CHRONIC DISEASES OF THE CERVIX UTERI WITH INDICATIONS FOR ENDO-CERVICAL ENUCLEATION AND A NEW INSTRUMENT FOR ITS PERFORMANCE.[1]

By HERBERT H. SCHLINK, M.B., Ch.M. (Sydney),
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PART I.

To gynæcologists, it is unnecessary to stress the importance of the cervical endometrium as an area for harbouring infective processes or for the growth of malignant disease; still, the pathology and treatment of the affections of this region were until recently as little appreciated as appendicitis or ectopic gestation half a century ago. Our predecessors described in detail cervical erosion and cervical catarrh, but did not understand the pathology of these conditions and entirely failed to appreciate their infective nature. To-day we know that they are nothing more than chronic inflammatory processes, caused by the gonococcus, streptococcus, *bacillus coli communis*, or some other pathogenic organism and at times contributed to by trauma suffered during childbirth or instrumental interference. In olden times the laceration was considered the important lesion, but we now know that the dominating factor is the infection and not the tear. The latter is merely the path of entrance for infection which might extend until the whole of the surrounding tissues are involved.

Anatomy and Physiology.

The cervix differs anatomically and physiologically from the rest of the uterus. Some of the chief points of difference are as follows:

(i.) The lining columnar cells with their basal nuclei dip down into the underlying tissues to form numerous branching racemose glands unlike the unbranching tubular glands of the uterus and their intricate nature makes them apt hiding places for infective organisms (see Figures I. and II., page 563). Their depth rarely reaches three millimetres (one-eighth inch) below the surface and in the neighbourhood of the internal os, where the mucosa merges into that of the body of the uterus, they are less numerous and shallower. (ii.) The muscular layer of the cervix has a greater proportion of connective tissue than the body and is, therefore, firmer. It contains no large venous sinuses and the blood vessels which are confined more to the outer layers of the cervix, have thicker walls and smaller lumina. (iii.) The glands secrete a thick tenacious mucus, in contrast to the clear watery secretion of the uterine glands. Under normal physiological conditions a thick mucoid plug is constantly being formed in the cervical canal and acts as a natural barrier to the ascent of many mild vaginal infections. (iv.) The cervical mucosa does not take part in the changes of menstruation or pregnancy and is more or less inactive in childbirth. In point of physiological fact, the cervical canal simply acts as a passive communicating channel between the vagina below and the body of the uterus above.

Pathology.

The racemose glands of the cervix in virtue of their geographical position in the genital track can be attacked either by a descending or an ascending infection and this fact accounts for the great frequency in this region of inflammatory processes which may be confined to the mucosa, causing endocervicitis, or extend into the deeper tissues, causing cervicitis (see Figure III., page 563). Polak, of Brooklyn, asserts that these diseases are the most prevalent of all gynæcological disorders and that fully 85% of all women, single or married, have infected cervices. Ascending infections are chiefly responsible, especially gonococcal infections. For the absence of the periodical blood flood and desquamation that take place in the *corpus uteri* during menstruation, as well as the depth and intricacies of its ramifying racemose glands, allows this cervical area to be a more or less silent resting place for the gonococcus and this organism takes full advantage of the fact, as every clinician knows to his sorrow. *Per contra*, the menstrual blood bath and desquamation explain why the gonococcus is unable to make more than a temporary home in the corpus, for when the deluge comes, the stragglers of the great gonococcal army of invasion seek shelter in the cervical dugouts and the advance guard rush for a more congenial camping ground amidst the plications of the Fallopian mucosa. Only a remnant of the main army avoid being washed out of the external os. (This is the reason why gonococci can usually be found about menstruation period.) And if these do not profit by their experience and gain shelter higher up or lower down, before the second or third monthly deluge comes along, they will be completely *hors de combat* and unable to rejoin and assist their comrades in the attack on tubes or cervix. The cervical detachment might later receive a few reinforcements from the Fallopian battlefield by the latter concealing themselves amongst the dead bodies of their opponents, *id est* the pus cells, as they pour away to the vulval outlet to be buried on the sanitary diaper of the host. In my opinion this double attack in the advance and the retreat, *plus* the depth and maze-like structure of the racemose glands and the silent rôle this area plays in menstruation and pregnancy account largely for the chronicity of cervical gonorrhœa. This evening you will be shown microscopical sections of the cervix which display the gonococci *in situ*, and you will realize for yourselves the ideal hiding place this area provides for infective organisms.

Again the columnar epithelium of the cervical mucosa under the constant stimulation of chronic infections of various kinds rapidly proliferates and actually pushes itself out of the vaginal aspect of the cervical rim, replacing the stratified epithelium and producing so-called erosion. Erosion, therefore, is not ulceration, but actually a new cell formation which may under certain conditions become malignant. The continued congestion of such a condition produces over activity of the glands indicated by leucorrhœa with hypertrophy and

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on April 24, 1924.

hyperplasia of the cervical tissues and so the ducts of the cervical glands become occluded, the secretion retained and Nabothian retention cysts formed (see Figure IV., page 563). These are not only caused by the hyperplasia of the periglandular tissue pressing on the ducts, but the thick over production of mucoid secretion may actually block the ducts or the squamous epithelium may grow in over the erosion and choke or cover up the gland exits. In microscopical sections the stroma may show very little inflammatory change, except for the distended follicles filled with mucus and surrounding these some signs of subacute inflammation. The changes are usually found less as we approach the internal os and this is only to be expected, as here the glands penetrate less deeply into the cervical tissues. The inflammation may become progressive and involve the deep underlying tissues and in old standing cases, the utero-sacral ligaments become the seat of chronic cellulitis which gives rise to the backache and dyspareunia so commonly encountered. However, leucorrhœa and sterility are the most prominent features of this affection. Reynolds, of Boston, demonstrated that no matter how vigorous a spermatozoon is, it cannot long withstand the strain of progress through a sea of tenacious mucus and clumps of pus cells blocking the canal of a diseased cervix. Lastly, as Polak points out: "Long continued cervical inflammation may be considered a prodrome of cervical cancer, for it is but a step from the extreme cell proliferation with the orderly arrangement that occurs in hyperplastic endo-cervicitis and cervicitis to the disorderly arrangements of embryonal cells found in cancer" and there is no disease that creeps more silently on the unsuspecting climacteric female, than cancer of the endometrial lining of the cervix, whether adeno-carcinoma or columnar carcinoma or squamous epithelioma of the *portio vaginalis*. This latter usually has its origin in an erosion or tear at the junction of the squamous and columnar epithelium around the *os externum*.

Treatment.

From a survey of the preceding paragraphs one and all will recognize the importance of investigating every avenue and method that will tend to cure thoroughly or prevent that intractable chronic inflammation of the cervix which results in the wearisome complaint of leucorrhœa and the extension of inflammation to other regions. In addition, by completely eliminating this disease we might hope: (i.) To relieve many persistent cases of sterility, which is the cause of so much domestic unhappiness; (ii.) to reduce the incidence of cancer of the cervix which has caused so much misery and so many deaths in the past.

The methods of treatment for chronic endo-cervicitis and cervicitis are either preventive, palliative or radical.

Preventive Treatment.

We must avoid, as far as possible, any acute inflammation from becoming chronic by rest, postural drainage and local cleanliness. This may include in the case of gonorrhœa, but not puerperal infections, local medications. If such local treatment be undertaken, the greatest gentleness and care must be exercised in order to avoid trauma and if any bleeding occurs, manipulations of every kind should cease.

Palliative Treatment.

Unfortunately, most patients are not seen until the conditions have become chronic and then are usually most intractable. A few medicated applications may be of service in mild cases or Gellhorn and Curtis's "Dry Fuller's Earth" treatment may suffice. In the more extensive cases with moderate degrees of laceration and ectropion the linear cauterization treatment of Hunner and Russel might meet with beneficial results. Curettage is of no use whatever and should never be attempted and the treatment suggested by Curtis of putting twenty-five milligrammes of radium in the cervix has not been given a sufficient trial. This latter and the diathermy treatment suggested by Fowler, of Melbourne, have in my opinion a decided disadvantage. Both are apt to destroy the lining epithelium and thereby cause stenosis and even if not active stenosis, they are apt to seal up the mouths of the racemose ducts and cause in future years Nabothian follicles and chronic cystic disease of the cervix. Foreman, of Sydney, has had some remarkable successes by the application of equal parts of glycerine and iodine after the removal of the mucus plug by a Jeyne syringe.

Radical Treatment.

Most gynæcologists are satisfied after giving them a trial that, except in simple and mild cases, these various palliative measures do not cure genuine chronic endo-cervicitis and cervicitis. Sturmdorf in his work called attention to the pathology resulting from these lesions and suggested excision of the infected area by a method which takes away a cone of the gland-bearing area, but preserves the greater part of the cervical musculature. The radical and scientifically accurate removal of the whole of the gland-bearing area of the cervix by the new instrument about to be described has several advantages over Sturmdorf's cone operation, chiefly in that there is no risk of any glands being left behind, a fact which makes operation by it the only real and permanent cure for chronic established disease of the endo-cervical gland.

PART II.

Endo-Cervical Enucleation.

Apart from the enucleation from below, as suggested by Sturmdorf for the cure of chronic diseases of the cervix, endo-cervical enucleation has many prophylactic advantages, when done after sub-total hysterectomy, as was first pointed out by Worrall, of Sydney. And it has been my practice for many years, when performing this operation for fibroid growths, *fibrosis uteri* or gross inflammatory disease of the appendages, to remove the endo-cervical lining of the cervix from above, in order to eliminate post-operative discharge, as the cervices are nearly always infected in such conditions, and to do away with the possibility of subsequent reinfection or cancer.

It might be said: "Why not perform a panhysterectomy?" Well, besides being a much more mutil-

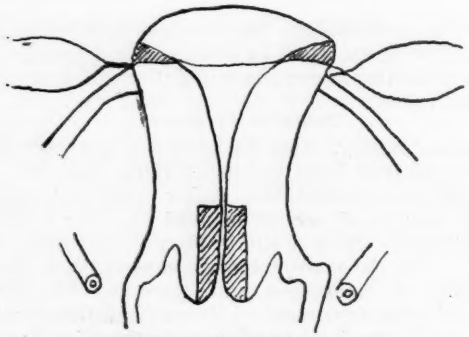

FIGURE XIII.
Diagram Illustrating Areas of Mucous Membrane which Require Removal for the Early Cure of Gonorrhœal Pyosalpinx and Chronic Endo-Cervicitis.

ating and difficult operation, with greater risk to the ureters than sub-total hysterectomy with removal of the endometrial core, it has three distinct disadvantages: (i.) The percentage mortality is higher in inexperienced hands; (ii.) it destroys the posterior *cul-de-sac* of the vagina, often leaving a painful linear scar and a much fore-shortened vagina which frequently leads to severe dyspareunia and much domestic distress; and (iii.) in a panhysterectomy the middle supports, notably the *ligamentum coli* or transverse cervical ligament (Mackenrodt) are severed, thereby making prolapsus of the vaginal walls possible, whereas by leaving the shell of the cervix these ligaments are in the main preserved.

Lately, I have added another class of case suitable for the enucleation, namely, double pyosalpinx with infected cervix of gonorrhœal origin. After removal of the tubes with conservation of the uterus and one or both ovaries, I remove the infected endometrial core from below (see Figure XIII.). This operation has several advantages over hysterectomy: (i.) The uterine and ovarian arch of blood vessels is preserved intact and thus a normal blood supply is ensured to the ovary, whereas in the case of hysterectomy in which the uterine artery is tied, the conserved ovarian tissue must depend on a terminal supply from the ovarian artery alone and several investigators have shown that such a blood supply eventually leads to the destruction of the vital ovarian tissue and the overgrowth of the inert interstitial fibrous elements. (ii.) The *corpus uteri* on account of its menstrual floods soon dislodges any remaining gonococci and in most cases returns to normal. By being left *in situ* with the shell of the cervix, it preserves all the upper and middle supports and the possibility of prolapsus of the vaginal walls is lessened. In case of necessity the uterus can be used to hold up the perineal floor by one or other of the fixation operations. (iii.) The chief advantage is that it cures in six weeks a gonorrhœa that would otherwise take six months, if an infected cervix were left behind. It does all that a panhysterectomy would do without any of the disadvantages enumerated above.

The enucleation can be done before or after the salpingectomy or the cervical endometrium can be given an opportunity to clear and if it fails to do so in a reasonable time, it can be removed later.

Summary of Advantages and Indications.

1. It cures leucorrhœa and hence improves the probability of conception and its performance has been proved not to interfere with normal dilatation during subsequent labour.

2. It eliminates chronic gonorrhœa of the cervix and thereby does away with the gonorrhœal carriers who prove such a fruitful source of infection in the spread of venereal disease.

3. By its relief of focal infection, whether of a gonorrhœal or non-gonorrhœal nature, it clears up the posterior parametritis in the utero-sacral ligaments and cures the lumbo-sacral backache and dyspareunia which are such prominent symptoms in chronic endo-cervicitis.

4. Performed after sub-total hysterectomy for fibroid growths, *fibrosis uteri* or gross inflammatory disease of the appendages, it eliminates the possibility of occurrence of that severe and wearisome post-operative leucorrhœa of cervical origin which sometimes takes years to clear up and, secondly, it avoids leaving behind a canal of mucosa which no longer has any physiological function and might subsequently become the seat of a fresh infection or be the starting point of a cancerous growth. Statistics have shown that 2% of the cervices left behind after the removal of the uterus for fibroids develope malignant disease in the area removed by this prophylactic operation.

5. When carried out from below after or before the removal of the Fallopian tubes for gonorrhœal salpingitis, it cures the patient of infection in one-third of the time it would take if an infected cervix were left to take care of itself and, besides, it preserves the normal blood supply of the ovaries and leaves intact the upper and middle supports of the uterus.

From what has been said it will be clear that the majority of the patients with cervices suitable for enucleation will have been previously sterilized by the removal of the uterus and only in the remainder will the question of a patent canal for menstruation or conception have to be considered.

I would like to state clearly here that only those patients in the latter group whose condition proved chronic and resistant to other forms of treatment, or who have suffered from persistent sterility, should be regarded as suitable for this operation.

The Endo-Cervical Enucleator.

Until recently the removal of the endometrial core was performed with a scalpel and it was noticed that very frequently the endometrium was either button-holed or imperfectly removed, for the cervical canal often has an awkward angle in it. Islands of mucosa were often left behind and resulted in subsequent leucorrhœa or formed retention cysts in the healing process. And again, by cutting out of the correct plane and approaching the periphery of the cervical musculature larger vessels were opened and troublesome hæmorrhage occurred. It suggested itself to me that if a director, armed with a circular knife after the principle of the trephine, were used, a scientifically measured cylinder of tissue, containing the whole of the gland-bearing area, could be removed with accuracy, despatch and ease. After many attempts I have at last perfected an instru-

ILLUSTRATIONS TO DR. HERBERT H. SCHLINK'S ARTICLE.

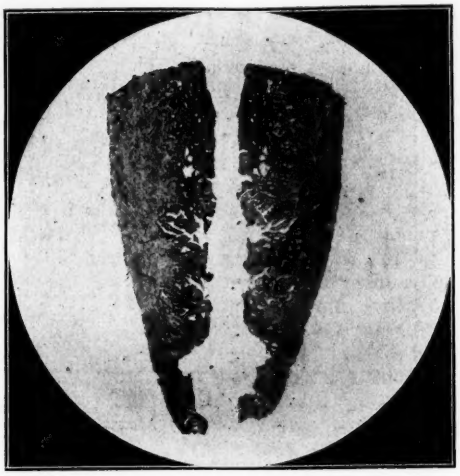

FIGURE I.—Microscopical Section of Gland-bearing Area of the Cervix Removed by Enucleation.

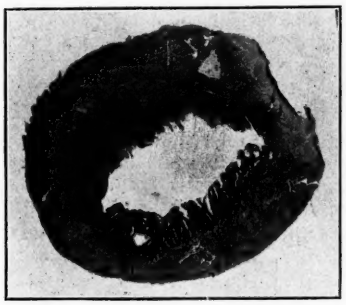

FIGURE II.—Transverse Section of Gland-bearing Area of the Cervix Removed by Enucleation.

FIGURE III.—Section of Cervix Showing Acute Gonorrhœal Inflammation. In this Case Organisms were Discovered in the Depths of the Racemose Glands.

FIGURE IV.—Transverse Section Showing Chronic Endo-Cervicitis with Development of Nabothian Cysts Midway Between Internal and External Os.

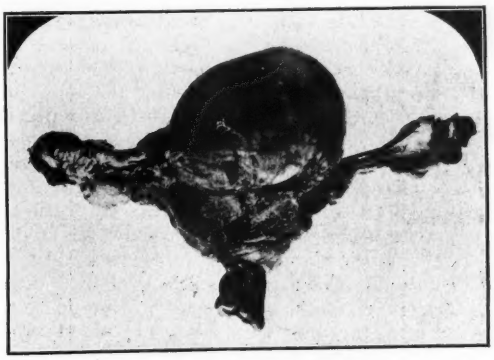

FIGURE V.—Specimen of Fibroid Uterus Removed by Sub-Total Hysterectomy with Endometrial Core of Cervix Removed from Above. The Core Attached to *Corpus Uteri* for Photographic Purposes.

FIGURE VI.—Showing Preliminary Enucleation from Below and Subsequent Sub-Total Hysterectomy.

ILLUSTRATIONS TO DR. HERBERT H. SCHLINK'S ARTICLE.

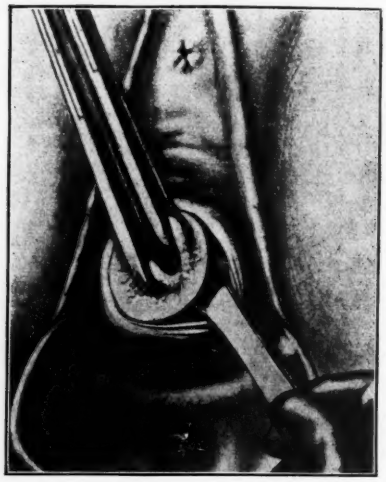

FIGURE VII.—Showing Preparation of Collar of Mucous Membrane of *Portio Vaginalis* Necessary in Certain Cases. (After Polak.)

FIGURE VIII.—Illustrating Method of Inserting Invaginating Sutures in Sturmdorf's Operation. (After Polak.)

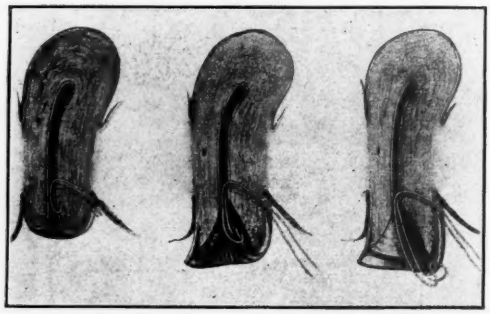

FIGURE IX.—Sectional View of Anterior and Posterior Mattress Sutures Inserted to Infold the Mucous Membrane which will Act as a Lining to the Cervical Canal. (After Polak.)

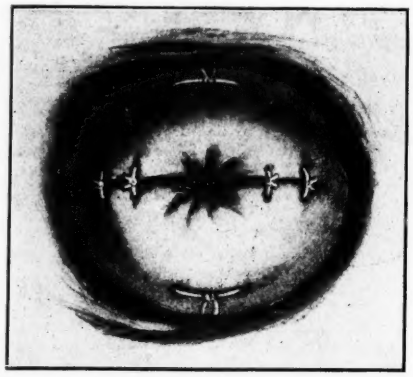

FIGURE X.—Appearance of Cervix after Completion of Sturmdorf's Operation. (After Polak.)

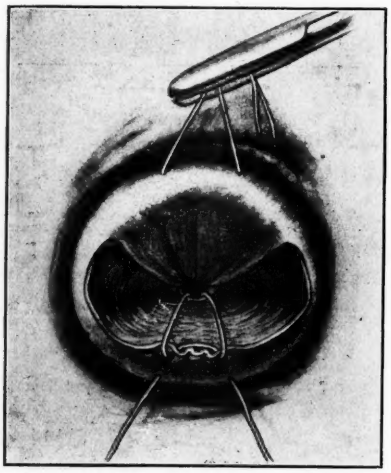

FIGURE XI.—Showing Mattress Sutures. The Anterior Suture is Drawn Taut and not Tied. In the Lower Suture this has not been Done. (After Polak.)

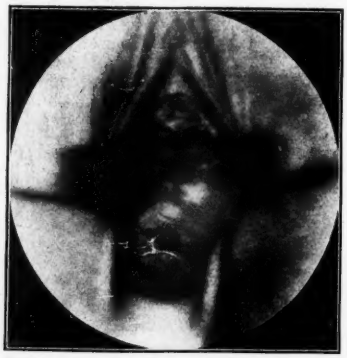

FIGURE XII.—Showing End Result of an Endo-Cervical Enucleation by the Special Instrument.

ment which fulfils all requirements. I here wish to acknowledge gratefully my indebtedness to the maker of the instrument, Paul Hartwig, Johannis Strasse, Berlin, who spent infinite pains in its manufacture and did not once lose patience over the several alterations he was asked to make.

The gland-bearing area with a slight strip of the underlying musculature is cut out in a few seconds with perfect safety with this instrument which leaves behind the greater part of the cervical musculature and does not interfere with the length or shape of the vagina or the mid-supports of the uterus.

The instrument consists of a director staff, armed at its tip with three small concealed tenacula blades (see Figure XIV.). To a sheath fitting over this staff, a circular knife, with 2.5 centimetre (one inch) long blade, is attached, at a position five centimetres (two inches) from the concealed tenacula. The knife by circular rotation can be made to slip over the director, remaining three millimetres (one-eighth of an inch) distant from it and completely encompassing the fully extended tenacula blades at the point and extending beyond them for a short distance (see Figure XV.). In practice the staff with the tenacula concealed is introduced into the cervical canal to its full extent; the tenacula blades are then extended by a screw at the handle end. This manœuvre fixes the staff in the cervical tissue and the circular knife can now be rotated through the cervix. When fully driven home, it cuts out a solid 2.5 centimetre (one inch) column of mucosal and cervical tissue to a circular depth of three millimetres (one-eighth of an inch). This ensures the whole of the mucosa and a thin strip of muscular tissue being removed. Furthermore, the knife has a limited range of movement and can do no injury to bladder or vaginal mucosa; besides, it penetrates the inner layer of the cervical musculature where the vessels are usually small and gives rise to only a slight amount of hæmorrhage which is easily controlled by a hæmostatic stitch or two.

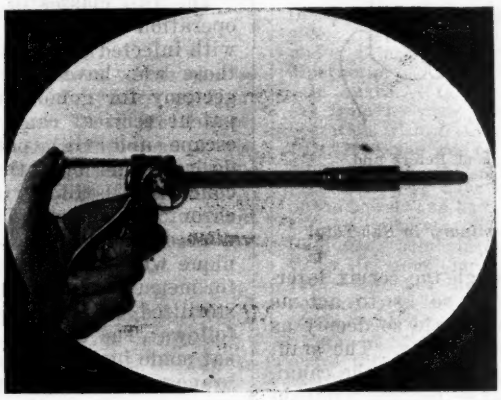

FIGURE XIV.
The Enucleator Before Rotation of Knife.

FIGURE XV.
The Enucleator After Rotation of Knife.

Technique of Operations.

The first few cases were done from above after the uterus had been removed by sub-total hysterectomy. Later it was found that, done as a preliminary part of the operation from the vaginal aspect with the uterus attached to the endo-cervical core, the operation was much simpler and allowed complete control of hæmorrhage. Both methods are useful in selected cases and I shall briefly describe the mode of procedure in each.

Enucleation from Above: After Sub-Total Hysterectomy.

After the uterus has been removed at about the level of the internal os, two stout sutures of gut are passed through the cervical tissue on both sides, care being taken that their deepest penetration remains outside of the core of tissue to be removed. These are left long and act as retracting fixators. The staff of the enucleator is then inserted to its full depth into the cervical canal. (This may require slight preliminary dilatation with a Hagar's sound.) The tenacula are released and fixed into the tissues of the cervix and the knife rotated home; the core of the tissue will then come clean out with the instrument (see Figure XVI. and Figure V., page 563). If difficulty is experienced, withdraw the knife, remove it from its attachment and then pull upon the staff and cut through the holding tissue which is usually only the thin layer covering the *portio vaginalis* around the *os externum*. A few mattress sutures will easily control bleeding as well as flatten the hollow shell of cervix and the two sutures which acted as retractors, can be used for attaching the cut ends of the round ligaments, so as to give support to the vault of the vagina.

In cases where there is doubt as to whether you will remove the uterus or not until after the laparotomy, the above mentioned difficulties can be obviated and the enucleation from above made easier by inserting the instrument from below as a preliminary and starting the enucleation to a depth of three millimetres (one-eighth of an inch). Should you not remove the uterus no harm is done as the shallow circular cut will soon heal over. In those cases where there is no doubt regarding the subsequent removal of the uterus the following technique is employed.

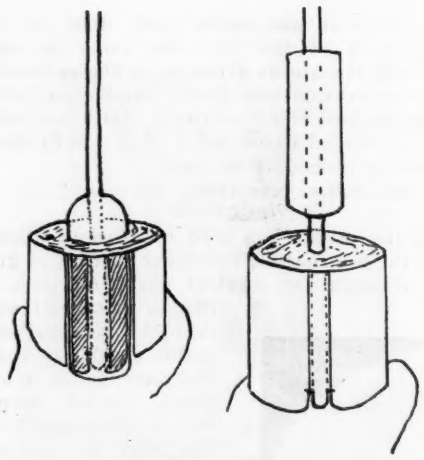

FIGURE XVI.
Diagram Illustrating Instrument Before and After Rotation of Knife Blade in Operation from Above.

Enucleation from Below: Preliminary to Sub-Total Hysterectomy.

Two sutures are passed through the cervix laterally and their ends left long so as to act as retractors, these should not penetrate so deeply as to be cut by the ascending knife blade. The staff, with or without preliminary dilatation of the canal, is passed to its full length, the hidden tenacula knives are released and thus the staff is fixed, the knife is rotated home, the tenacula are sheathed and the instrument withdrawn (see Figure XVII.). Two sutures are passed through the anterior and posterior lips of the shell and when these and the two lateral retractor sutures are tied, hæmorrhage is completely arrested. Later, when the sub-total hysterectomy is done, the outer shell of the cervix alone is cut through and the uterus with core of endometrial tissue removed *en masse* (see Figure VI., page 563). If dealing with an infected uterus the excised external os may be ligatured and touched with iodine after enucleation and so ensure

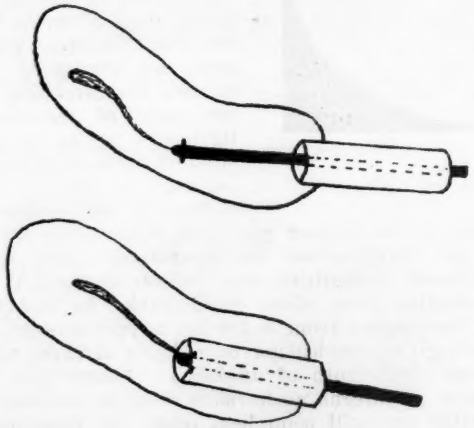

FIGURE XVII.
Diagram Illustrating Instrument Before and After Rotation of Knife Blade in Operation from Below.

no spilling of infective material in the abdomen. When dealing with a transverse laceration the tear may be roughly closed by two ligatures before passing the instrument so as to get a complete circular cut around the external os.

When healing has taken place in this and the preceding type of operation the *portio vaginalis* is small with an oval dimple at its extremity (see Figure XII., page 564). Leucorrhœa is completely cured and there is no interference with the vault of the vagina.

Enucleation from Below: Without Sub-Total Hysterectomy.

The two classes of case for which this type of operation is suitable are: (i.) Sterilized patients with infected cervices, acute or chronic, for example those who have been subjected to double salpingectomy for gonorrhœal pus tubes and require a patent cervical canal for menstrual discharge to escape and (ii.) patients for whom Sturmdorf designed his operation and in whom subsequent conception is likely to occur, *id est* patients with chronically infected and eroded cervices which are unaccompanied by tubal involvement. The technique which aims at patency of the cervical canal for menstruation and conception, is the same in both sterilized and non-sterilized patients and is as follows: The enucleator is inserted and a circular cut made just deep enough to free the mucous membrane and the loose underlying tissue of the *portio vaginalis,* the knife is then removed and while making traction on the staff a cuff of mucous membrane is rolled back from the circular cut (see Figure VII., page 564). It may require some dissection and even lateral incisions before it can be done. The circular knife is now readjusted to the staff and rotated home to the level of the internal os. The instrument is now released and withdrawn. The freed core of endometrium pokes out like a tongue from the cervical shell (muscular contraction of the uterus) and with a little traction, it will extrude almost to the internal os.

After arresting hæmorrhage the core is split into two tongues, anterior and posterior, a mattress suture of fishing gut is now inserted with two needles as in Sturmdorf's operation (see Figures VIII., IX. and X., page 564) through anterior flap of the mucosal cuff of the portio and then carried through the endometrium at the level of the internal os, through the cervical tissue, both ends appearing high up in the vaginal vault. A similar suture is passed through the posterior lip. These are tied only after the anterior and posterior tongues of endometrium are cut away just distal to where they are pierced by the fishing gut (see Figure IX., page 564). In this way the flaps of the vaginal mucosa are rolled in to cover the raw surface from which the endometrium has been removed and junctions with the cut edges of the latter (see Figure XI., page 564). A few lateral sutures are then inserted to cover the raw surfaces and a glass stem pessary may be inserted to ensure complete patency of the canal. I have only used it once in the few operations I have performed by this technique.

Two difficulties might be encountered: (i.) In hard and inelastic cervices the mucosal flaps of the portio might not reach to the cut endometrium at the internal os. In such a case free the cuff to a greater extent and cut off the rim of the cervical shell to the required depth. Traction on the sutures must be avoided for success. (ii.) In badly lacerated cervices it might be necessary to excise the laceration with scissors or knife until the regular uniform calibre of the cervix is met. After cutting off this redundant tissue the instrument can be used in the usual way for the remainder of the canal or, as mentioned before, the tear may be roughly closed by ligatures before commencing the operation.

Conclusion.

Any surgeon using this instrument which can be secured from Elliott Brothers, of Sydney, or from the maker, Paul Hartwig, of Berlin, will soon realize the saving of time and the completeness with which endo-cervical enucleation can be accomplished. It leaves no room for error and removes with perfect safety a scientifically measured section of tissue certain to contain the entire gland-bearing area of the cervix.

In my opinion, the operations are to be recommended on account of the facts: (i.) That they save 2% of patients with fibroids from subsequent development of cancer; (ii.) that they eliminate the female gonorrhœal carrier and (iii.) that they cut short by one-third the time taken to secure absolute freedom from infectivity in cases of acute gonorrhœal salpingitis.

In conclusion, I thank my audience for their patient hearing and I trust I have made myself clear in regard to the scope and indications for these various operations for endo-cervical enucleation.

Reports of Cases.

A CASE OF HYSTERIA.

By C. A. Hogg, M.B., Ch.M. (Edinburgh),
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AND

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The following case of hysteria is of interest in that although it presented nothing new it showed in an interesting way many well-known symptoms. Among them were:

(i.) Scattered islets of altered sensation after Pitres type; (ii.) inversion of colour field or dyschromatopsia, the blue field being much smaller than the red and about the same size as the green—in one eye smaller; (iii.) two instances of hysterical convulsive attacks; (iv.) several instances of hysterical fugue; (v.) a form of incoordination considered to be hysterical in type.

Patient X.Y., a female, aged thirty-five years, married, wife of labourer with two children, was admitted to hospital on July 14, 1923, complaining of difficulty in walking and loss of memory.

Family History.

The father died at seventy years from cancer of the neck. The mother died at twenty-nine years from consumption. One brother died at thirty-five years of consumption. Two sisters, thirty-seven and forty-one years, both have goitres. One sister, thirty-three years, had pneumonia two or three times during the last two or three years and also had a goitre removed. One brother was alive and healthy. There was no history of epilepsy, insanity or alcoholism.

Personal History Including History of Illness.

Bodily Health.

When between five and twelve years of age she had measles, whooping cough and abscesses in both ears. At the age of fifteen years she was operated on for goitre. One side was done first and twelve weeks later the other side. At seventeen years she had all her top teeth out under a local anæsthetic. At twenty-five years she had diphtheria.

In August, 1914, after being eight weeks at home suffering from nervous breakdown with insomnia she had an operation with drainage done for appendiceal abscess. In July, 1920, she was curetted for pain in side (periods had ceased March, 1919, and for some years had never been regular). Two days after getting up she got ulceration of the bowels and had it for four months. For three weeks she had eighteen motions daily with blood and slime. She had pain in the stomach. Latterly she had three to four motions daily. Later in this year, 1920, she got a needle in her arm and had a poisoned arm and three operations under a general anæsthetic were done. In 1921 she had a second attack of ulceration of the bowels passing mucus and blood. This lasted three weeks. After this attack discharge from the uterus started which she had never had before. For six months she had pieces coming away in discharge, yellow in colour and sometimes blood-stained. She was seen by a gynæcologist who removed a piece for examination and advised removal of the uterus. There was some smell with the discharge. In June of that year, however, she was curetted. She was eight weeks in hospital and was not better after it. After coming out of hospital she still had pain in the side and felt weak. Three weeks later she had gastritis due to eating ham paste.

She was married at twenty-two years. The first confinement was easy, but she got influenza after it. She was in bed one month. Three years later a second confinement occurred (boy) and she was fourteen days in bed.

Mental and Nervous Health.

Mother died when patient was five years of age and this broke up the family, the patient and one brother going to live with an aunt. Between the ages of five and twelve she fell into a waterhole and was nearly drowned and was in bed for fourteen days after. She was unconscious when got out. The memory of this does not worry her. At school she got on well with the teachers and pupils and was in the highest class.

Her little boy at the age of two (1914) suffered from enteritis and infantile paralysis and this has been a source of worry since. Her husband then went to the war and this worried her a good deal, as she tried to persuade him not to go but without avail. Her memory of this is so faulty at present compared with her husband's that they are reproduced for comparison.

Her Statement.—Husband was at war from 1916 to 1918. Was sick in Egypt from pneumonia and did not arrive in Australia for three months after she heard of his illness. This worried her a good deal as she was uncertain of the ultimate outcome. She states he was ill for five weeks in hospital after his return. On being questioned, she states her husband was in the military police for two months.

Husband's Statement.—Was at the war November, 1915, to June, 1916. He had no pneumonia but slight fever. He did not come back owing to illness, but because the horse-breaking detachment to which he was attached, was disbanded. He was not ill for five weeks, but was in the military police

for nine months. He resigned and took up the same duties in another State for two years.

In 1918 she came down to be near her favourite brother who was dying of consumption. He died in 1918 on a Saturday and for some time after this she had a recurrence of the worry of that night. This has now worn off a bit. At Christmas, 1919-1920, she was worried by her father's illness. He lived with them and the noise made by his swallowing worried her and made her ill so that the doctor advised him to leave. He had cancer. The worry diminished when he left. He has now been dead six weeks and she is no longer worried over this.

After coming out of hospital in 1922 she found that if she told anyone anything that in the middle of it she would forget what she was saying, but if they told her she would remember again. She had a dreadful feeling in her head and thought she was going out of her mind. (It is stated by a friend that for some time past the patient had felt that something was going to happen and even talked about being afraid she would become insane. She asked in case of that happening that her sister should take the children and look after them.) Patient also states that for the last two years she had been afraid at night that someone might grab her and if she goes out into the street feels afraid of motor cars.

In September or October, 1922, she appears to have had a fugue. She went to a relative's house to get a prescription. She was afterwards found at X—— post office and did not know how she got there. Later in the same day she was taken to a hospital nine miles away where she remained one day. She does not know who took her there and has only a vague recollection of it. She was taken thence to another hospital five miles away, but does not know how she got there. She then went home and stayed in bed three weeks and at this time she says her legs started to get weak and after she got up she never got the proper use of them. They trembled and she could not walk and she seemed as if her feet were glued to the ground. She states that after this she had attacks once a week when she knew what was being said to her, but did not know what answer to give.

In May or June, 1923, according to a friend, she came to her house unexpectedly and asked to be taken to the doctor as she was not feeling well, had funny noises in her ears "like a beetle flying about" and complained of earache. She also kept her eyes shut owing to intolerance of light. It was difficult to get her home from the doctor's owing to her saying when half-way home that she could not walk. On arrival home and while undressing her she appears to have had a true hysterical convulsion for she started to throw herself about, pull her hair, struggle dreadfully and tried to bang her head. The attack lasted half an hour and the doctor found it necessary to use chloroform. Five or six weeks later she had another similar attack.

Married Life.

Her husband was a non-smoker and a non-drinker who worked well and earned good wages and whose efficiency and health were not injured by the war.

Shortly after marriage she showed evidence of want of control and irritability, being very upset by trifles and "going off her head." She has had many staunch and true friends, but has fallen out with them by accusing them of one thing and another. One woman she accuses of opening a letter from her husband (but there is no delusion arising from this). She fell out with relatives on flimsy pretexts and when she did so tried to turn her husband against them. When she went home in October, 1923, she got at once into a bad humour about old things being missing. She started to upset and change everything. Her husband describes her as being like two persons altogether and she used to go from one extreme to another and was excitable and bad tempered all the time during this period. She refused to sleep on the bed because she had no wardrobe and put all her clothes *et cetera* on the bed, sleeping on the floor herself. She did this for two nights, but her hip getting sore she decided the next night to sleep on the bed. On the Saturday on which she had her last fugue in the morning she had some unpleasantness about money, lost her temper and then suddenly veered round to a cringing attitude. She went out later in the day on the expedition which ended at the reception house.

On going home her husband (who had, she says, got a letter from his sister about her) told her that it was enough disgrace being in a mental hospital without telling others about it. This worried her and she could not sleep. On Saturday he mentioned it again and she started off on Saturday to confide in a friend about it. Her husband states that it was she who was always stating that she had disgraced them and he pointed out the opposite to her.

History of Present Illness.

Owing to her loss of memory and difficulty in walking she was admitted to the Mental Hospital, Parramatta, as

Figure 1

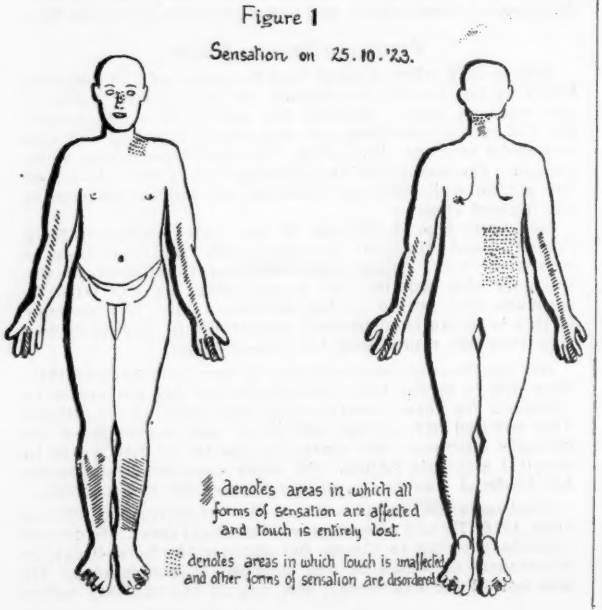
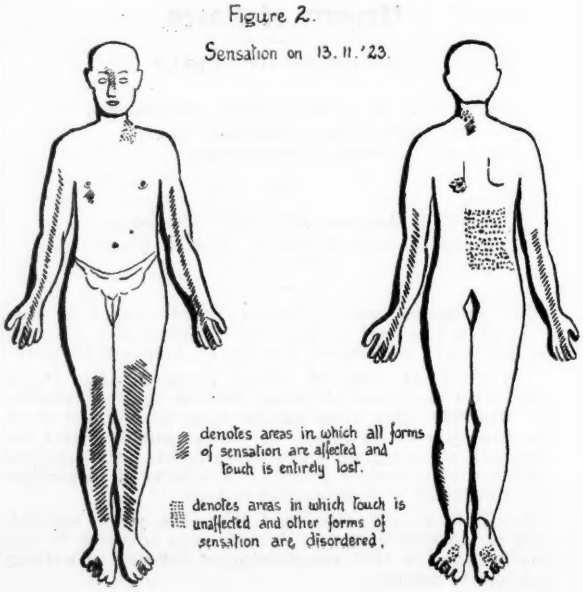

Sensation on 25.10.'23.
denotes areas in which all forms of sensation are affected and touch is entirely lost.
denotes areas in which touch is unaffected and other forms of sensation are disordered.

Figure 2.


Sensation on 13.11.'23.
denotes areas in which all forms of sensation are affected and touch is entirely lost.
denotes areas in which touch is unaffected and other forms of sensation are disordered.

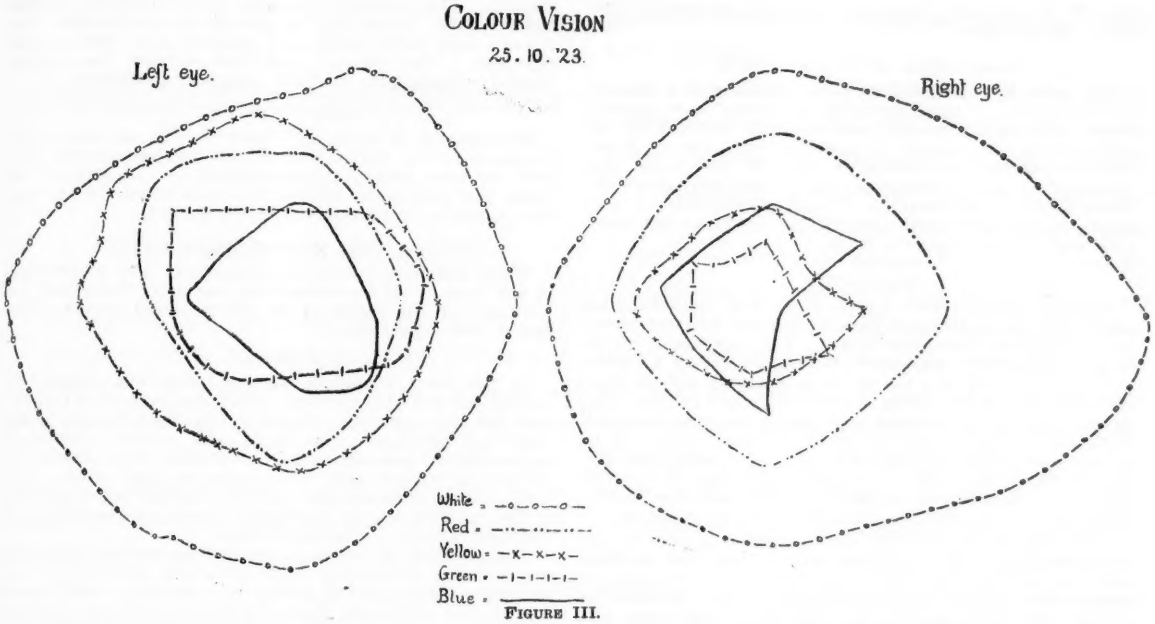


FIGURE III.

a voluntary patient and the history of illness is given in the preceding paragraphs.

Condition on Admission.

The respiratory system showed nothing of note.

Circulatory system: Pulse ninety while at rest, nothing else of note.

Urinary system: The urine contained pus and a few motile bacilli.

The nervous system is described later.

She was unable to walk without assistance. There was some enlargement of the thyreoid gland, but no exophthalmos or lagging of the upper lid.

Course and Progress After Admission.

In the week following admission she had ten "trembling attacks" in which she complained of cold and tingling in the legs and was observed to tremble violently. Her voice was altered and increased in pitch. Other slighter attacks began with a queer sensation in her stomach and did not alter her voice. These attacks left her confused and depressed for a few hours. Eleven days after admission these attacks disappeared and have not returned since. On July 31 she stated her intention of going home and of taking poison on arrival there. When her husband came for her she refused to go. During August she still showed great motor incoordination on attempting to walk, although she could move her limbs perfectly while at rest in bed. Two nurses were detailed to take her for a walk daily to give her confidence and it was pointed out to her that her walking would improve and there was no reason why she should not walk. During this month she had a few attacks of confusion associated with depression. Early in September she was noted to be walking much better and less assistance was needed. She rapidly improved in her ability to walk and soon she could do so without assistance though she swayed as she walked. On September 22 she developed an acute cystitis which cleared up under treatment. On October 16 she stated she felt quite well

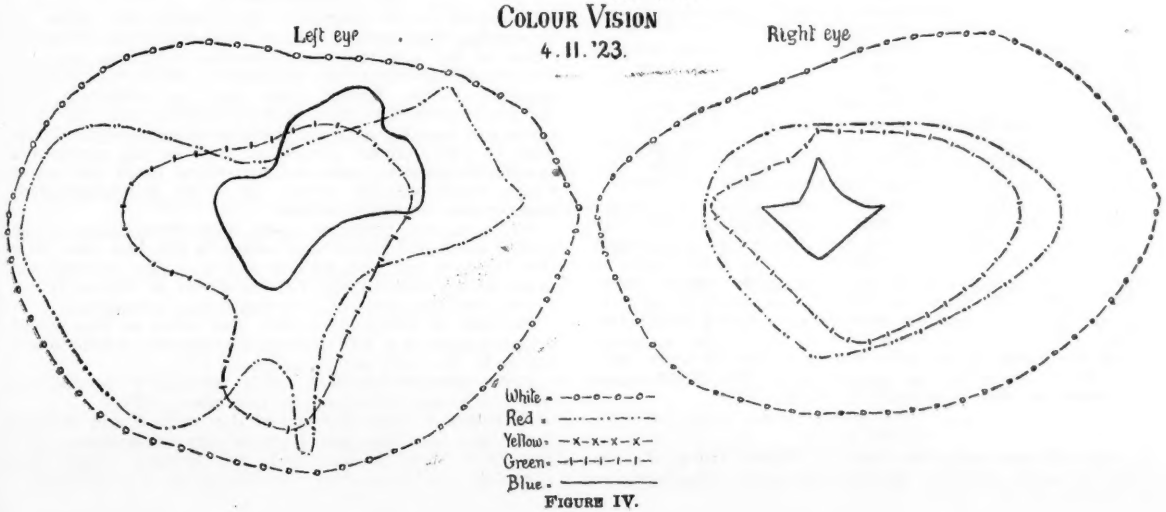


FIGURE IV.

and left the hospital. Four days later she returned having had a typical fugue.

Examination of Nervous System.

She made no complaint of pain. There was a history of a convulsive seizure, hysterical in nature (*vide supra*). There was no paresis or paralysis and there were no contractures. No trophic disturbances were noted. Some intention tremor was noted in the left foot when she attempted to touch a hand in front of her with this foot. There was a slight increase of tone and rigidity on continued flexion in the left arm and leg while the left hand grip was stronger than the right.

Coordination.

The gait showed rather a peculiar form of incoordination which was quite different from that found in either locomotor ataxia or cerebellar ataxia. The appearance which it most resembled, was that of a person trying to walk along the kerbing of a gutter or on a greasy pole in that each foot was swung across in front of the one behind. The general course in walking was not a straight one and deviated to right or left in reaching a fixed point. It is to be noted, however, that her ability to walk has improved since she came to hospital, although it is still defective. As regards coordination, the tests for incoordination due to cerebellar disease yielded no response.

With eyes closed and both arms extended in front of her there was no deviation of either arm. There was no past-pointing, no pendular knee jerk and no asynergia on mastication. There was no decomposition of movement in raising leg while supine, in touching a hand with her foot, in raising her knee on to a chair or in raising herself from a recumbent to a sitting position. There was no adiodochokinesis. The rebound phenomenon was tested for and found to be normal.

There was no disturbance of cephalogyric movement. She could touch her nose with her finger, but the movement was slow and could not be hastened. She showed Rombergism. She always lies on her left side as she says she feels giddy if she lies on her back or right side. This answer, however, may have been due to our suggestion.

Sensation.

Irregular islets of disturbed sensibility were demonstrated. These were distributed after the Pitres type on various parts of the neck, body and limbs and were confined to areas served by the spinal nerves. In the left lower extremity the following changes of sensation were observed in areas supplied by the fourth and fifth lumbar and first sacral nerve. The appreciation of touch, pain, heat, discrimination of differences of weight, were totally lost over the third toe and over an irregular area on the leg as shown in the diagram. In the right lower extremity there was loss of appreciation of touch, pain and heat and weight discrimination over the third and fourth toe and a large area on the leg (L4—S1). Over the front of the body all sensations were lost over a small area below the right nipple while there was hyperæsthesia to pain in the left inguinal region. On the back pain and heat were not appreciated while touch was unimpaired over the inferior angle of the left scapula (T6) and over a large area (T9—S2) extending from mid-line to flank on right side. All sensation was lost over vertebral spines (C7—T2).

The skin of the left side of the neck (C3—4) was insensitive to pain and heat. The right upper extremity was anæsthetic to touch, pain and heat over an area extending upwards in linear fashion from tip of the third finger to the middle of the arm in front and to the elbow behind (C7). The left upper extremity was similarly affected except that the anæsthesia only extended to 2.5 centimetres (one inch) above the elbow joint in front. The sensation over the bridge of the nose was impaired for touch, pain and heat. There was no astereognosis. The disturbances of sensation are represented in Figure I.

Special Senses.

The olfactory sense was normal. There was no disturbance of sense of taste. Hearing was good. There was no tinnitus. The *membrana tympani* were thickened, opaque and retracted. There was no sign of any perforation. The Barany tests both caloric and rotatory gave the normal reactions. The *fundus oculi* was normal, the pupils reacted consensually to light and accommodation.

Fields of Vision.

Examination of fields of vision showed on both sides inversion of the field of vision and dyschromatopsia, the field for blue being contracted down to the size of the green field and in the left eye was even smaller than this. The condition is represented in Figure III.

Other Cranial Nerves.

There was no spontaneous nystagmus. The movements of the eyes in all directions were normal. There was no alteration in the region of the other cranial nerves. The speech was unimpaired.

Reflexes.

In the lower limbs the plantar reflex was difficult to obtain, but was of flexor type. The knee jerks were present and not exaggerated. Gordon's and Oppenheim's reflex were not obtained. The upper and middle abdominal reflexes were present, the lower absent. The supinator, wrist and triceps jerks were active on both sides. The conjunctival, corneal and palatal reflexes were normal.

The sphincters were unaffected. Sneezing, coughing and deglutition were not interfered with.

Since writing the above the patient has become depressed on receiving distressing home news and as her gait was noticed to be more unsteady her sensation was again tested with the result shown in Figure II. Note that all the original anæsthetic areas have increased in extent.

She was discharged on October 16, 1923, and four days later had a fugue.

Description of Second Fugue.

On the morning of Saturday, October 20, she got up early and something cropped up about money matters which upset her. She later went with her daughter to a railway station with the intention of visiting a friend a few miles away. She dismissed her daughter, telling her to come for her in the afternoon. She was next found in the Reception House and inquiry elicited the fact that she had walked into a suburban police station and had sat down and that the police could get nothing out of her except that she came from a hospital where there were a lot a strange people. She was therefore taken to the Reception House. It was found she had an uncle in this suburb, an ex-sergeant of police, who was not in good health. Questioned about this, the patient states that she has not been to this suburb for two or three years and all she remembers of the events of the day is being in a bed somewhere.

Conclusion.

In regard to the diagnosis, the question has arisen as to whether this was a case of hysteria or an affection either of the labyrinth or cerebellum. Against the two latter were the facts that the gait is quite atypical, that reactions to the Barany tests were not obtained, that the other cerebellar tests gave no results, that the optic nerve was healthy and that there were none of the symptoms of any tumour, abscess or cyst in the cerebellum causing increased pressure, nor were there any signs which would suggest either an acute parenchymatous degeneration or a hæmorrhage.

Owing to her receiving some news from home which caused emotional stress and owing to the fact that after this incident her gait became worse, a new tracing was taken of her sensations. This is shown in Figure II. It shows that the areas of anæsthesia had increased.

The field of vision for colours also taken on this second occasion showed a still further contraction of blue colour vision in the right eye (see Figure IV.).

Under treatment patient slowly returned to normal and was discharged recovered in December, 1923.

In February, 1924, she visited the hospital and reported that there had been no return of any disturbance. Her gait was then normal and her manner bright and cheerful.

The Medical Journal of Australia

SATURDAY, JUNE 7, 1924.

Radiography and Obstetrics.

IT has been well said that the true conduct of labour commences with ante-natal supervision and treatment. A medical practitioner cannot be regarded as doing his duty to his patient if he is content to undertake the supervision of the actual birth of a child without satisfying himself by every means at his disposal that the mother is in a state of normal health, that the maternal passages are of a sufficient diameter to permit the expulsion of the fœtus and that the fœtus itself is not abnormally large. Moreover, it is necessary to determine with accuracy the presentation of the fœtus before the onset of labour. Much has been done in Australia in the promulgation of the underlying principles of ante-natal care and the credit of this must be given in large measure to the routine adopted and the results achieved at the obstetric teaching hospitals throughout the Commonwealth. Although it will be admitted on all sides that the ideal standard has not been reached in the teaching of obstetrics, it will be agreed that the importance of ante-natal supervision is being brought more forcibly before students than was previously the case. At the same time there is much more teaching and preaching to be done and many more converts must be made. It is not intended to discuss at the present time the reasons for the failure of many medical practitioners to recognize the importance of the subject nor the varied and complex excuses offered by others for failure to put their faith into practice.

The taking of an accurate clinical history by the medical practitioner in attendance is of primary importance at the inception of ante-natal supervision. When this is followed by regular urinary and cardio-vascular examination and later on by the accurate estimation of pelvic measurements, he can complete his preparations by means of abdominal palpation in order to determine the nature of the fœtal presentation.

An aid to diagnosis which has not been used to a sufficient extent by obstetricians, is that afforded by X-ray examination. Radiology has been successfully applied to almost every branch of medicine and surgery. The obstetrician has not always realized how he may be assisted in almost all stages of pregnancy by recourse to this branch of medical science. In the early stages radiography has been used for the diagnosis of unruptured extra-uterine gestation and for this purpose has also been combined with the production of a pneumo-peritoneum. It is possible by means of skiagraphic examination to determine with certainty the existence of twin pregnancy and also to distinguish between this condition and that of hyramnios. Of considerable importance, too, is the differential diagnosis of myoma of the uterus and pregnancy. These conditions are not always distinguishable by clinical examination and by seeking the opinion of a radiologist a definite decision can be made. In regard to the fœtus itself much information may be obtained. A hydrocephalic head may be recognized and suitable treatment undertaken.

Reference was made in this journal in our issue of October 7, 1922, to the work of Spalding who claimed that he could determine the fact of intra-uterine death of the fœtus from the over-lapping of the cranial bones consequent on shrinkage of the brain tissues.

Much useful information may also be obtained by radiographic examination in regard to the maternal pelvis. Old fractures and diseased joints are brought into prominence and gross contractures of the cavity of the bony pelvis are immediately apparent. Radiographic methods have been used also in pelvimetric estimations. Mackenzie in 1918 published some interesting work in this connexion and in 1923 referred to the subject again in a paper which he read before the Annual Meeting of the British Medical Association. Mackenzie's method consists in the comparison of the skiagram of a pelvis under examination with that of a "standard" pelvis. The exposures are made under identical conditions in each instance in regard to the angle of

the exposure of the sensitive plate to the X-ray tube and the point of focus. Mackenzie claims that in this way accurate internal measurements may be made. Those who practise this method of examination, point out that with modern tubes and with the short exposures which are necessary, no ill-effects are produced in either the mother or infant. They claim in addition that radiography produces a minimum amount of discomfort when compared with other methods of examination.

It will be and has repeatedly been claimed that radiography has little to recommend it as a routine precedure when it is compared with the trained fingers of a skilled obstetrician. It is also pointed out that a radiologist requires to be experienced in obstetric examinations before his opinion can be of definite value. It is well to remember, however, that great accuracy has been obtained by radiologists in the estimation of size and distance in other fields of investigation such as the location of foreign bodies from gun shot wounds in various parts of the body. It is inevitable that personal examination by an obstetrician will not always be successful and it may not always be desirable. The radiologist will then be called upon to help. In any case he is destined to play an important part in the practice of obstetrics.

Current Comment.

THE NATURE OF HODGKIN'S DISEASE.

WIDELY divergent views are held as to the nature of Hodgkin's disease. Some observers hold that it is caused by an infective process, others explain its manifestations by assuming the presence of a pathogenic parasite and others again maintain that the disease is neoplastic in nature. The evidence in support of each of these views is inconclusive. The clinical features of the disease lend support to the view of the infective origin and it is also rendered more probable by its resemblance to tuberculosis and other infective processes. The parasitic view has been regarded as receiving some support from the changes occurring in the adenoid tissues and the lymphatic glands.

Among those holding the parasitic view is Dr. S. W. Patterson. Dr. Patterson recently discussed the condition.[1] He stated that syphilis and tuberculosis were related to Hodgkin's disease only as secondary accidental infections. He said that the pathological changes in the liver and spleen had led to Hodgkin's disease being regarded wrongly as a new growth affecting the blood forming organs; from consideration of the peculiar disturbances of temperature with remittances and large oscillations, the more or less progressive course ending in death and the pathological appearances it might rather be concluded that the causative agent was probably parasitic.

Those who hold that Hodgkin's disease is neoplastic in nature, base their opinions on microscopical study of the lesions produced. It has been pointed out that as is seen in the case of infective diseases a condition similar to Hodgkin's disease occurs in lower animals. Micrococci and bacilli have been isolated by various observers in the lymphatic glands of affected individuals. Delbet found a bacillus in the blood from the spleen of a woman suffering from *"lymphadénome généralisé,"* he obtained pure cultures of this organism and injected large doses into a dog. After some weeks enlargement of the glands was produced and a pure culture of the bacillus previously injected was obtained on examination. Among those who have studied the relationship between Hodgkin's disease and tuberculosis is Dr. W. S. Lemon[1]. Dr. Lemon has reviewed the historical aspect of this question in a very interesting fashion. He also refers to investigations undertaken by himself and Doyle at the Mayo Clinic into the relationship of tuberculosis to Hodgkin's disease both as an ætiological factor and as an associated disease. They confined their investigations to patients in whom mediastinal involvement was present. Among twenty-six patients so affected only two gave a family history of tuberculosis. In only one patient was a diagnosis of tuberculosis made from the skiagraphic appearances. This could not be confirmed either by clinical or microscopical examination. *Post mortem* examination was carried out on the bodies of three patients and in no instance was evidence of tuberculosis discovered. In a series of one hundred and ninety-one cases of Hodgkin's disease evidence of tuberculosis was found in eight. This evidence was secured as a result of X-ray examination. In a series of one hundred and ninety-one patients suffering from various diseases skiagraphic evidence of tuberculosis was obtained in seventeen. Dr. Lemon states that this would seem to indicate that tuberculous involvement of the mediastinum is not as common a complication in Hodgkin's disease as it is in other diseases. He points out, however, that in making such a comparison it must be remembered that glandular involvement in the mediastinum is infrequently seen in pulmonary tuberculosis. He concludes that the infection with the tubercle bacillus does not produce Hodgkin's disease, although the two diseases may be associated.

In a recent issue extensive reference was made to the work of Dr. Douglas Symmers on the clinical aspect of Hodgkin's disease. He has also discussed the nature of this condition.[2] He refers to the

[1] *The British Medical Journal*, March 22, 1924.

[1] *The American Journal of the Medical Sciences*, February, 1924.
[2] *The American Journal of the Medical Sciences*, March, 1924.

various views of the causation of the disease and says that as a rule tumours are dominated by a single type of cell or by variations of the same type, as in the mixed spindle-celled and giant-celled sarcomata. Metastases of tumours present histological changes identical with or comparable to those of the parent growth, but this is not always so and remarkable changes in shape and arrangement of cells may occur. On the other hand the histological appearances seen in Hodgkin's disease remain essentially the same throughout all changes of environment. In this respect the disease resembles an inflammatory lesion of the granulomatous type. Dr. Symmers also points out that, although it may be advanced in favour of the neoplasmic nature of Hodgkin's disease that the process sometimes produces infiltration and destruction of tissues, certain inflammatory dsieases such as actinomycosis and tuberculosis often pusue an equally ravenous course and that, moreover, they tend to maintain their histological individuality regardless of environment. In Hodgkin's disease the lesions in the glands are made up of cells of different morphology and if these are to be regarded as metastases, they would have to reach their new abode in the form of diversified cell collections and proliferate as such. It is equally fantastic to suppose that a single type of cell when transplanted is capable of reproducing a cell complex. It has been held that the spontaneous attempts at healing sometimes observed in Hodgkin's disease are in favour of the inflammatory nature of the disease. An equally adequate attempt at healing is sometimes seen in the overgrowth of connective tissue in such malignant tumours as schirrus carcinoma of the breast. Dr. Symmers states that it does not seem to him that Hodgkin's disease provides any criteria by which it may be grouped either among the inflammatory diseases or among the neoplasms. There are many diseases which partake of the nature of both neoplasms and inflammatory diseases. Hodgkin's disease must be included in this category. Dr. Symmers goes on to show that the lymphatic glands and other lymphoid tissues in fully developed Hodgkin's disease are characterized by a combination of cells each of which finds its prototype in the normal bone marrow. These distinctive cells are of several kinds. The first is a large rounded cell, indistinguishable from the non-granular, mononuclear cell of the normal bone marrow. Another is larger than and of identical morphology with that seen in the normal marrow and described variously as myeloplax, multinuclear myeloid giant cell and megakaryocyte. Two other distinctive cells are the polymorphonuclear eosinophile cell and the eosinophile myelocyte.

Having shown that the cells characterizing the lesions in the lymphoid tissues have their prototypes in the bone marrow, Dr. Symmers refers to the changes seen in chronic myelogenous leuchæmia and argues in a convincing fashion that these are occasioned by embolism from the bone marrow. He sees no reason why the same orgument should not be applied to Hodgkin's disease. The reaction of the bone marrow in Hodgkin's disease and in chronic myelogenous leuchæmia is fundamentally the same, although there is a difference in the two diseases in regard to the relative numbers of the cells discharged and the reaction of the recipient tissues. In myelogenous leuchæmia the bone marrow is excessively hyperplastic; myelocytes are discharged into the blood stream in enormous numbers and on infrequent occasions, but are nevertheless found in the peripheral circulation and in the tissues. In Hodgkin's disease the bone marrow is less richly hyperplastic; megakaryocytes are discharged in considerable numbers, but at irregular and infrequent intervals. They have been found in the peripheral blood, but at irregular intervals. In the lymphoid tissues they may be identified in considerable numbers and sometimes as the most prominent cell in the microscopical picture. Much the same statement applies to the large mononuclear giant cell and to the eosinophile cells and the eosinophile myelocytes. Dr. Symmers states that it is frequently taught that the lymphatic glands are not involved in chronic myelogenous leuchæmia. This has not been his experience. He has found glandular involvement in four cases of myelogenous leuchæmia. On this account he states that the two diseases are more intimately related than is commonly supposed.

Dr. Symmers concludes that Hodgkin's disease is an affection of the "hæmolyto-poietic" apparatus. He also states that in view of the parallelism between the reaction of the bone marrow and of the lymphoid tissues in myelogenous leuchæmia and Hodgkin's disease these two diseases are fundamentally related. He thinks that they are probably different quantitative responses to the same type of provocative agent.

MELANURIA IN ABSENCE OF MELANOTIC TUMOUR.

MELANIN belongs to the group of so-called metabolic pigments. It occurs normally in the chorioid, skin and hair. Its appearance in the urine has always been regarded as being due to the presence in the body of a melanotic sarcoma. Melanuria does not, however, occur until secondary deposits in the liver have taken place. That it is not always indicative of melanotic sarcoma is shown by Dr. R. L. Haden and Dr. T. G. Orr who have recently reported melanuria in twelve patients not affected by melanotic sarcoma.[1] In two instances this absence was confirmed by autopsy. They refer to reports by other observers of similar cases and lay stress on the importance of precipitating the pigment from the urine in order to determine the absence of alkaptone bodies, indican and other substances which may be confused with melanin. They state that the value of the demonstration of melanuria in the absence of melanotic sarcoma is that it indicates a certain type of protein destruction. This always occurred subsequent to a fall in the chloride content of the blood.

[1] *Bulletin of the Johns Hopkins Hospital*, February, 1924.

Abstracts from Current Medical Literature.

BACTERIOLOGY AND IMMUNOLOGY.

Human Sensitiveness Induced by Minute Amounts of Horse Serum.

SANFORD B. HOOKER, (*Journal of Immunology*, January, 1924) draws attention to the fact that a considerable proportion of persons who do not respond to horse serum when first tested for susceptibility to diphtheria by the Schick test, develope a skin sensitiveness to horse serum after receiving injections of toxin-antitoxin. In a study of individuals who, as far as could be ascertained, had never had any form of serum treatment prior to the first endermal test and toxin-antitoxin injection, an immediate reaction followed the second endermal injection of serum in 27.1%. No reaction had been obtained in these to the primary test. Sensitization was brought about by the previous injections despite the infinitesimal content of horse serum protein. The author recommends that until thoroughly safe preparations of protective antibody practically free from horse serum are available for use in the treatment of such diseases as pneumonia, meningitis *et cetera* or until effective serum-free diphtheria toxin preparations are developed for active immunization of human beings, some animal other than the horse be chosen for the production of the antitoxin destined for use in the toxin-antitoxin mixtures.

A New Method of Staining Acid-fast Organisms and Spores.

VICTOR BURKE AND MARY DUNNING (*The Journal of Infectious Diseases*, February, 1924) describe the use of acetone and iodine acetone as the decolorizer in the differential staining of tubercle bacilli and of bacterial spores. The method of staining tubercle bacilli is as follows: (i.) Place the slide in a beaker of steaming carbol fuchsin for two minutes or longer; (ii.) wash without allowing the smear to become dry; (iii.) decolorize with acetone or iodine acetone (one part Gram's iodine solution to three parts of acetone or add a few crystals of iodine to acetone) until the smear is nearly colourless. This requires only a few seconds. If acetone without iodine is being used and the smear does not decolorize quickly and sufficiently, the slide should be flooded with Gram's iodine solution and after draining the acetone treatment is repeated. (iv.) Counterstain with 10% aqueous solution of a saturated alcoholic solution of methylene blue for from one to two minutes or a saturated aqueous solution of picric acid for from five to ten seconds. In the staining of bacterial spores stages (i.) and (ii.) are followed, the smear being then decolorized with two to three changes of acetone and after washing counterstained with Löffler's methylene blue for two minutes. It is claimed that acetone or iodine acetone serves as a superior decolorizer in the acid-fast stain as in the Gram stain. The same decolorizer may be used for both methods of staining. The method of staining spores makes it possible to distinguish living spores from spores killed by heat. The living spores are only stained at the margin, those killed by heat being stained in the centre.

The Agglutination of Streptococci.

GERALD S. SHIBLEY (*Journal of Experimental Medicine*, February, 1924) deals with the subject of the agglutination of streptococci and suggests some method for the management of refractory auto-agglutinating strains. It was found: (i.) That steptococci grown at room temperature (17° C. to 23° C.) are stable in all concentrations of sodium chloride ordinarily employed in the agglutination reaction and possess an acid agglutination zone resembling that of stable organisms in general; (ii.) that streptococci grown at 37° C. are not stable in sodium chloride solution and have either a widened acid agglutination zone or, if this zone is not widened, are unstable in the buffer solution outside this pH zone for other reasons. The latter explanation is considered to be the correct one and results seemed to show that the reason is a difference in the attracting forces of the various strains examined. In looking for an explanation of the results obtained differences of potential or cohesion or both were sought and it was concluded that many strains of streptococci when grown at the temperature of incubation employed as routine possess an attracting or cohesive force which is resistant to the depressing effects of the concentration of salts commonly used as electrolytes and on this account spontaneous agglutination occurs. Growth at a lower temperature in some way prevents this resistance with the greater resulting stability of suspensions. The results of the experiments indicate that some strains of streptococci are always diffuse and give stable suspensions for specific agglutination; some are granular, but by growth at room temperature may be made diffuse and will then yield satisfactory suspensions; the few remaining refractory granular strains may be made less granular by growth at room temperature and can then be tested satisfactorily with electrolytes in low concentration or else in buffer solutions of pH7 to pH8.

Iso-Agglutinins in the Blood of Koreans, Manchus and Japanese.

HOZUMI FUKAMACHI (*Journal of Immunology*, July, 1923) records the results of the examination of the iso-agglutinins in the blood of series of Koreans, Manchus and Japanese. The "biochemical race-index" of L. and H. Hirschfeld was adopted, this being the proportion of A (in the corpuscles of Groups II. and IV.) to B (in the corpuscles of Groups III. and IV.) *id est* $\frac{A+AB}{B+AB}$. The race in which this index amounted to more than 2.0, was regarded as being of European type, that from 2.0 to 1.0 as of intermediate type and that of less than 1.0 of Asio-African type. The author found that the Koreans were of intermediate type though not far from Asio-African, their biochemical race-index being 1.16. The Manchus, with an index of 0.75, belong to the Asio-African type. The Japanese, with an index of 1.69, belong to an intermediate type that is quite different from that of the Koreans and Manchus. The author considers it noteworthy that the biochemical race-index in Japan gradually decreases from south to north, while in the comparatively small number of persons so far examined the indication is that the race-index in China increases from north to south.

Production fo Monovalent Botulinus Antitoxin.

M. W. WHEELER (*Journal of Immunology*, November, 1923) records the results of different methods employed in the preparation of monovalent Botulinus antitoxin horse serum. Litre flasks of Van Ermengen broth (pH 8.4) were inoculated with twenty-four to forty-eight hours broth cultures of the organisms and incubated at 33° C. to 35° C. for five weeks. The toxins were then preserved with 0.5% phenol and filtered through pulp and finally through a filter candle to insure sterility. The potency of the toxins was determined by the subcutaneous method, the minimal fatal dose being the amount of toxin which when injected subcutaneously would kill a guinea pig weighing two hundred and fifty grammes in about ninety-six hours. The monovalent antitoxin sera were produced by subcutaneous inoculations of horses with the homologous toxin. During the preparation of these sera three methods of immunization varying slightly from one another were employed. In the first frequent injections of toxin with rapid increase of dosage were given. At the end of five months the titre of the serum was one hundred and fifty units of antitoxin per cubic centimetre. It was found that some horses failed to respond readily to this method, two out of three horses immunized succumbing after the tenth or twelfth dose with typical symptoms of botulism. The second method was by slow increase of dosage with intervals of rest. At the end of seven months the titre of the serum was less than fifty units of antitoxin per cubic centimetre. Only one horse was immunized by this method and at the end of seven months its condition was poor. The third method was by frequent injections of toxins with slow increase of dosage. By this method antitoxin

production was stimulated as readily as by the first method and with less danger to the animal. The maximum titre of one thousand four hundred units per cubic centimetre was obtained with type A toxin by this method.

HYGIENE.

The Industrial Medical Officer and the Plant.

C. F. N. SCHRAM (*The Journal of Industrial Hygiene*, January, 1924) defines the industrial physician as "one who applies the principles of modern medicine and surgery to the industrial worker, well or sick, supplementing the remedial agencies of medicine by the sound application of hygiene, sanitation and accident prevention, and who, in addition, has an adequate and co-operative appreciation of the social, economic and administrative problems and responsibilities of industry in its relation to society." He must be intensely human and must above all understand men and should be able to explain a medical or surgical question in shop language. In private practice patients deal with their doctor because something is wrong with them or their family and they wish his personal interest. The employees in every mine, in every store, in every shop of each and every industry do the same. In order for any physician to be able to give this sort of service, he must know his patient and know him well. The closer patient and doctor can meet as man to man the better acquainted they will be. The author maintains that the employee is practically always at a disadvantage when he meets the physician, whether it be at the physical examination for employment or in the shop or hospital when being treated for an injury, for he is often dirty; whereas his surroundings are spotless, he is very often partly undressed and feels at a disadvantage —in short, he is not placed at the same advantage as when visited in his home. The medical practitioner must do more than be pleasant and he must do more than perform a technical job well. He must know his patients and if he is to know them well, he must meet them an their own grounds, possibly where he may be at a disadvantage. The miner is at home in the mine, the mechanic at the bench or machine, the salesman at the counter or in the office, and it is here the medical practitioner must meet the worker. In order to get the latter's viewpoint the medical practitioner must now and then stand where the patient stands and look through his eyes. The author argues that sickness causes fifteen times as much lost time as accidents and that the only way by which a medical practitioner can learn to cope efficiently with disease in a preventive way is by going to the place where it possibly originates and where it surely spreads. When employees see him in the shop working to improve conditions for them, to give them clear drinking water from an appetising place, to provide them with showers, then they will have sufficient confidence to bring the medical problems of their families. A man, in order to do work, must go where that work is. The medical practitioner deals with men and their surroundings and he must see them and learn to know them and their *habitat* in order to know how to treat their ailments and he must know how to improve their surroundings in order to prevent their having as many ailments.

Rest in the Treatment of Pulmonary Tuberculosis.

W. B. PENNY (*Northwest Medicine*, January 5, 1924) lays stress on Krause's dictum: "Fresh air and putting on weight dominate the field of patient and doctor outside of the sanatorium." When working in the home, the patient and doctor establish a partnership for curing the tuberculous activity and there must be no secrets between these partners. Confidential conference is the ground work on which future successes or failure rests. Business affairs must be arranged for an indefinite leave and in the case of the wife, all household duties must be transferred to someone else. Parents must understand that the great danger to their young is in personal contact and that sacrifice may be the means of saving their children from a like experience. The best room in the house and the best ventilated should be selected as far away from household noise as possible for the patient's use. The furniture need not be expensive, but above all, must be harmonious, as rest is the keynote of all treatment. The author points out that fatigue must be abolished, as tiredness and fatigue are striking features of tuberculosis; rest, mental and physical must be attained. Absolute rest is imperative until the signs of progressive disease such as a temperature over 37.5° C. (99.5° F.), rapid pulse and general malaise have either been eliminated or remain stationary for several weeks. When this has occurred the most critical moment of the battle is reached, as the patient is now anxious to be up and doing. At each visit the patient must be impressed with the necessity for immediate rest at the first feeling of fatigue. A fatigue, however, which gives a grateful sense of rest and is entirely relieved before the next period of exercise, is allowable. For the next month or six weeks, the patient is gradually allowed to sit up in bed for increasing periods, to have cheerful visitors, to sit up in a chair for five or ten minutes, then on to be allowed to walk to the bathroom and so on until the period of carefully prescribed walking is allowed. All walks should be on the level or lead uphill so that if fatigue overtakes the patient, it will not be necessary to climb to reach home. As ability to stand exercise without fatigue increases, automobile rides are of value, also light games (croquet). It must be remembered, however, that a severe strain of any kind may mean going back to the beginning and starting afresh. The diet need not be special as long as it is well cooked and tastefully served. A well-balanced, varied diet, suited to the patient's likes and of quantity to satisfy his appetite, is usually all that is necessary.

Gonorrhœa and Syphilis in Industry.

WILLIAM F. SHOW (*Nation's Health*, August 15, 1922) states that before the war the American Health Officer almost entirely ignored venereal diseases, but that to-day there exists a reasonable and practical organized defence against them. In this work there are four major activities: education, enforcement of the law, medical measures and reactional facilities. Both gonorrhœa and syphilis are important from the standpoint of the employer. They involve loss of time, morbidity and worry on the part of workers. The communicability of these diseases, too, is an important consideration. The result is undoubtedly felt in regard both to the cost of plant and the rate of production. Reduced production may result from muscular incoordination during the early stages of *tabes* and from ocular manifestations of syphilis. Latent syphilitic infection may play an important part in the immediate and late consequences of trauma, while from the late disabling manifestations of syphilis the employer sustains the greatest losses of all. It has been shown that if a syphilitic workman sustains under certain circumstances an injury which causes an aneurism or paresis or which causes any of the possible results of trauma as affecting syphilitic tissue, he is entitled to compensation, provided it can be proved that injury arose in the course of and through employment. The pre-existence of syphilis does not lighten the responsibility of the employer. There is hardly a phase of industrial management, therefore, which may not be affected by the presence of unrecognized or uncared for venereal disease. Means open to the employer for controlling this loss are early recognition, careful and thorough diagnosis and conscientious treatment. It seems feasible to approach the problem through the physical examination for employment or through the periodic examination, but routine examinations for the recognition of syphilis *et cetera* do not seem practicable. The medical department of an industrial organization should not necessarily provide for the diagnosis and treatment of venereal disease unless no other facilities are available. Industry is, however, reasonably interested in the betterment of community medical service. For industrial organizations that largely make up the community it may even be profitable to finance entirely the community's attack on gonorrhœa and syphilis.

British Medical Association News.

SCIENTIFIC.

A MEETING OF THE NEW SOUTH WALES BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the B.M.A. Building, Elizabeth Street, Sydney, on April 24, 1924, DR. ANDREW DAVIDSON, the PRESIDENT, in the chair.

Internal and External Migration of the Ovum.

DR. HERBERT H. SCHLINK read a paper entitled "A Clinical Contribution on Internal and External Migration of the Ovum and the Importance of Excising the Intramural Portion of the Fallopian Tube in the Operation of Salpingectomy" (see page 555).

Chronic Endocervicitis.

Dr. Schlink also read a paper entitled "Chronic Diseases of the *Cervix Uteri* with Indications for Endocervical Enucleation and a New Instrument for its Performance" (see page 560).

DR. R. WORRALL said that he had listened with pleasure to Dr. Schlink's papers. They were so easy to follow and represented so much work. In *The Australasian Medical Gazette* of March 21, 1904, he (Dr. Worrall) had published four instances of external migration of the ovum. This occurrence was now admitted to be not uncommon. Spread out on a table the distance between the two ovaries was considerable, but in their natural position in the pelvis the ovaries and tubes were in close juxtaposition, it was therefore easy to understand how external migration might occur. Internal migration was quite a different proposition; its occurrence was not admitted by any authority and he (Dr. Worrall) did not think Dr. Schlink had proved his case. Attempts to sterilize patients by ligating and resecting portions of the tubes had frequently failed. Dr. Schlink had admitted that portion of the tubes had been left behind in each of his patients. Why could not the ovum from the ovary of the same side have found its way into this stump of the tube in each instance? This the speaker thought was far more probable than that it had made a circuitous journey by external or internal migration.

Dr. Schlink's instrument for the cure of endocervicitis was most ingenious and would no doubt accomplish the aim in view. Its defects were those of all mechanical contrivances, namely it could not be adapted to the need of the individual case. Thus in the last picture screened which showed marked ectropion and degeneration, the operator had to begin by using the scalpel and then take up his instrument. Why not finish as he had begun? Dr. Worrall did not do the coning-out operation of Sturmdorf which was apt to leave some diseased tissue, but modified it so as to remove the entire mucosa of the cervix with some underlying muscularis into which the glands penetrated, in one piece of the same size and diameter throughout. Once a beginning had been made it was easy to continue the dissection as high as might be desired in that plane.

When Dr. Schlink's instrument was used from above, it would be necessary first to amputate the uterus and if the cervix were infected this might be very undesirable. He thought his own operation of total hysterectomy in non-malignant conditions of which he showed a photograph taken from the original paper in the *American Journal of Obstetrics and Gynecology* (November 6, 1917) possessed all the advantages of ordinary total hysterectomy and none of its disadvantages and met every indication. He had had the pleasure of demonstrating the operation to Mr. W. J. Mayo and his colleagues two weeks previously. Mr. Mayo had remarked on the slight hæmorrhage, only three ligatures being required on each side. The ovaries were always allowed to remain and also the tubes when healthy.

While admiring Dr. Schlink's enthusiasm and ingenuity he felt bound to advise the younger members to practise all operations with those implements which were always available and always adaptable to the particular case, namely knife and scissors and needle and thread.

He had heard of two cases of delivery at full term following resection of the cervical canal, the last one had been attended by Dr. Keith Smith quite recently. Dr. Smith had reported labour that had been quite natural. The operation should be reserved for special cases which had resisted all local treatment.

DR. R. B. MONSON said that he wished to congratulate Dr. Schlink on his excellent papers. He wished to mention one point in favour of internal migration and referred to a paper which had recently appeared in *Surgery, Gynecology and Obstetrics* on a new theory of the causation of adeno-myoma in the ovary. The author of this paper had maintained that during menstruation there was a reflux flow in the Fallopian tubes. Dr. Monson thought that if this were so it was feasible that the ovum might pass up into the portion of the tube left after an incomplete salpingectomy. In regard to the suggestion of the possibility of mucus secreted by the endocervical glands acting as a barrier to cocci he wanted to know why the mucus did not act as a barrier to spermatozoa. If spermatozoa could pass through, any pathological organism could do so. Dr. Monson then proceeded to discuss operative measures. He said that in Germany and Vienna they were very conservative and many other methods of treatment were used. Considerable success had been obtained with diathermy in dealing with endocervicitis. This was not used in the way described by Dr. Fowler who used a fine point with a cauterizing effect. On the Continent they used a vaginal electrode the size of a twenty-two Hegar dilator. A current of two hundred to four hundred ampères was used for one hour daily and there were very few cases which did not respond to this treatment after about six weeks.

Dr. Monson also discussed the use of sterilized milk as an injection. It was frequently used in the proprietary form of "Caseosan" which gave rise to less reaction than sterilized milk itself. Similarly the injection of the active principle of turpentine was used with good results in the treatment of chronic infections by German gynæcologists.

DR. E. M. HUMPHERY said that he wished to thank Dr. Schlink for his useful and interesting papers. He recalled a patient who had been operated upon by the late Dr. Hinder in 1900. Hysterectomy had been performed and a photograph of the specimen reproduced in *The Australasian Medical Gazette* showed the complete ovum in the stump of the left tube which had been removed previously for an ectopic pregnancy. The only symptom of which the patient had complained before the second operation, was bleeding. The stump of the tube appeared to have been sealed and it was thought that the ovum must have migrated internally in this instance. He congratulated Dr. Schlink on the instrument which he had devised and characterized it as most ingenious.

DR. A. J. GIBSON said that he had been interested more particularly in Dr. Schlink's first paper on the migration of the ovum. He recalled one case which had made a deep impression on him. The patient had been subjected to salpingectomy and the intra-mural portion of the tube had been left behind. A fertilized ovum had become lodged in the small stump and later on rupture had occurred. Dr. Gibson said that it was very difficult to know whether the end of the tube was sealed or not. When rupture had taken place, it was impossible to be certain. He agreed that it was of primary importance to remove a wedge-shaped piece of the uterus in salpingectomy. In regard to Dr. Schlink's second paper he understood Dr. Schlink only recommended the use of his instrument in a very restricted type of case. He would probably adopt conservative measures in the absence of extensive damage and such measures often led to cure and subsequent pregnancy. He asked Dr. Schlink whether he had seen patients in whom difficulty in dilatation had occurred in pregnancy subsequent to the performance of the operation as described.

DR. CONSTANCE D'ARCY thanked Dr. Schlink for his very interesting papers. She was glad that reference had been made by several speakers to other forms of treatment for cervical conditions. She thought that the operation advo-

cated by Dr. Schlink might be expected to give rise to trouble in confinements. Dr. D'Arcy thought that Dr. Schlink's instrument was very ingenious and was calculated to make these operations easier. She thought, however, that a word of warning should be given in regard to operating on the cervices of women of the child-bearing age. She thought that treatment of gonorrhœa of the cervix should be less radical. Other means would be effective and less mutilating. In regard to the question of internal migration Dr. D'Arcy agreed with Dr. Worrall that Dr. Schlink had not quite proved his case.

DR. CRAWFORD ROBERTSON congratulated Dr. Schlink for presenting two such interesting papers. Previous speakers had already fully discussed the subjects. Dr. Crawford Robertson though that this operation as performed by Drs. Schlink and Worrall was most suitable for chronic cervicitis accompanying salpingitis. Removal of this source of infection did away with the profuse discharge and at the same time allowed the uterus to return to normal and so checked the severe menorrhagia found in these patients.

DR. SCHLINK made a brief reply. Referring to Dr. Worrall's remarks, he claimed that the findings in the patient on whom he had operated the second time (Case I.), proved conclusively the fact of external migration and was an absolute piece of clinical evidence against the contention of Burckhard that the ovum found its way through a fistula or recurring patency of the stump of the removed tube. On the other hand, Dr. Edye's and Dr. Russel Andrews's cases could be taken as proof of the internal migration as it was not likely that the ovum would refuse to enter the nearby fimbriated end of the homolateral tube and deliberately make its way across the abdominal cavity to seek out any small fistulous opening at the site of the removed tube, besides both specimens showed no evidence of any patency. He thought that on careful perusal of his paper most of those present would see that he had answered in it most of the objections that had been raised.

In regard to his instrument he did not claim to have done anything very original, but he did claim that the method was quicker, more accurate and safer than the knife, however skilfully used. A surgeon might just as well object to the use of the tonsillotome as to his instrument. In reply to Dr. Monson he said that the mucous plug which had been mentioned, was sometimes infected and was sometimes dislodged. In discussing conservative treatment Dr. Schlink laid stress on the fact that the operation he had described, was only suitable for use in selected cases. It would be absurd to claim that it was suitable for use at all times and in all conditions. It was only fair to say that Dr. Fowler who had advocated the use of diathermy at the recent Congress, did not actually cauterize the part. The fault that Dr. Schlink found with diathermy, was that the ducts became closed as a result of its use. The method which he advocated, was the only one which would not lead to the formation of Nabothian follicles and cystic disease of the cervix. Moreover, it saved 2% of patients operated upon for fibroids from getting cancer at a later date and it shortened the time of infection in those patients with gonorrhœa who had to submit to double salpingectomy. It was sometimes necessary to start with the knife when operating from below, but even then the instrument would be found of use in completing the operation in a satisfactory manner. He wished to emphasize the fact that the main point to be remembered was that it was essential to remove the infected areas in the intra-mural portions of the tube and the infected part of the cervix. If this were done, the rest of the uterus would look after itself.

In reply to Dr. D'Arcy and Dr. Gibson, he said that the operation did not lead to difficulties in subsequent confinements. He had not encountered any. Dr. Worrall had mentioned two cases in which no trouble had been encountered and Polak, of Brooklyn, had not met with any subsequent trouble during an experience of five years.

He was pleased that Dr. Crawford Robertson had brought out the point on which he had been trying to lay stress throughout the paper, namely that the operations were for selected cases and that the indications had been made definite and clear. He was interested in the case of the late Dr. Hinder cited by Dr. Humphery which again proved the necessity for intra-mural excision in the performance of salpingectomy.

Pathological Specimens.

DR. MONA ROSS demonstrated pathological specimens illustrating Dr. Schlink's papers. These included uteri in the removal of which Dr. Schlink's instrument had been used. She also demonstrated sections cut from cervices in which gonococci had penetrated to the depths of the endocervical glands.

Obstetric Films.

DR. SCHLINK then demonstrated some cinematograph films illustrating the delivery of fœtuses from both normal and abnormal intra-uterine positions. He laid stress on the value of such films in the teaching of students. Of special interest were the films representing the schematic dilatation of the uterus in various forms of presentation. A film representing the performance of Cæsarean section was both clear and instructive.

THE ANNUAL MEETING OF THE EYE AND EAR SECTION OF THE VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Eye and Ear Hospital, Melbourne, on April 30, 1924, SIR JAMES BARRETT, the PRESIDENT in the chair.

Annual Report and Balance Sheet.

THE SECRETARY read a brief annual report and the TREASURER submitted the Balance Sheet which showed a credit of forty pounds. These were adopted.

Office Bearers.

The following office bearers were elected for the ensuing year:

President: DR. J. A. O'BRIEN.
Treasurer: DR. LEONARD MITCHELL.
Secretary: DR. F. J. B. MILLER.
Members of Committee: DR. J. R. ANDERSON, DR. M. C. GARDNER, DR. E. GUTTERIDGE.

Induction of President.

SIR JAMES BARRETT thanked the members of the Section for their interest and support during his term of office which, he said, had been most enjoyable. He then introduced the new President, DR. J. A. O'BRIEN.

Orbital Cellulitis.

SIR JAMES BARRETT opened a discussion on orbital cellulitis. He said that most cases of orbital cellulitis followed on disease of the sinuses, though in a few instances no such cause could be found. He thought that some cases would subside with more or less expectant treatment and that exploratory incision for pus should not be carried out in the absence of definite indications of its presence, but that an exploring needle should first be used.

DR. EDWARD GAULT related some of his experiences and laid stress on the point that in looking for pus the surgeon should bear in mind that the collection might be under the periosteum. He favoured incision even if pus were not frankly present as the incision tended to lessen the general engorgement. In regard to the differential diagnosis of orbital cellulitis and thrombosis of the cavernous sinus, he laid emphasis on several points. In the first place there was in thrombosis a swelling over the mastoid process, though in cellulitis this might occur as part of the general œdema. Again, pain was present in thrombosis together with early paralysis owing to involvement of nerves in the sinus. Lastly the presence of a septic focus on the face was more in favour of thrombosis and a septic focus in the sinuses favoured the presence of cellulitis of the orbit.

DR. J. M. BAXTER also favoured incision. He referred to an instance in which he had been unable to find any disease in the sinuses, but had found pus under the periosteum. The patient had made a good recovery.

Hydatid of the Optic Nerve.

DR. MARK GARDNER reported a case of the removal of a hydatid of the optic nerve by Krönlein's operation. This case will be reported in full in a subsequent issue.

Plastic Operation on the Nose.

DR. CLIVE M. EADIE showed a patient in whom he had transplanted a piece of rib into the bridge of the nose with good results.

Atrophic Rhinitis.

Dr. Eadie also showed a patient suffering from atrophic rhinitis. He had separated the mucous membrane from the interior turbinate bone. A strip of rubber glove had been introduced between the muco-periosteum of the floor and lateral wall of the nose (with the interior turbinate attached) and the bony attachment of these. The packing had been changed once a day for a week till granulation was complete. The patient had felt much improved.

Optic Neuritis.

DR. E. GUTTERIDGE showed a patient who had suffered from optic neuritis. The conditions had cleared up after removal of the tonsils, the septum and the anterior ends of the turbinate bones.

Ulceration of the Soft Palate.

DR. C. SCANTLEBURY showed a patient who was suffering from syphilitic ulceration of the soft palate.

NOMINATIONS AND ELECTIONS.

THE undermentioned has been nominated for election as a member of the New South Wales Branch of the British Medical Association:

HENRY, CLIFFORD, M.B., Ch.M., 1914 (Univ. Sydney), Kenmore, via Goulburn.

Correspondence.

FOREIGN BODY IN THE TRACHEA.

SIR: In reference to "An Unusual Case of Foreign Body in the Trachea of a Young Child," reported by Dr. Lionel D. Cowling, of Adelaide, in your issue of May 17, 1924, the following similar case may be of interest to your readers.

In 1921, a child, about two years of age, was brought to the Children's Hospital, Sydney, with respiratory embarrassment, with the following history: At 9 a.m. he had been eating peanuts; three hours later he developed difficulty in breathing. During that three hours he was perfectly normal and had eaten two pears. When he came to hospital, about one hour (if I remember correctly) after his respiratory difficulty came on, he was cyanosed and had difficulty both in expiration and inspiration, and had some chest retraction. No foreign body could be felt with the finger. I intubated the child and it made no difference to the breathing and some time afterwards at the request of the Superintendent, Dr. Ratcliff, and with his assistance I did a low tracheotomy. As the tracheotomy made no difference to child's breathing I then with a special pair of tracheal forceps felt gingerly down the trachea for a foreign body, but could neither pick up nor feel anything. The child became gradually more and more cyanosed and some hours later died. We performed a *post mortem* and found the split half of a peanut at the end of both right and left bronchi.

Comments: According to the history, the child had not coughed violently or otherwise when it was eating the peanuts and no respiratory trouble arose for three hours; therefore I could scarcely believe that a peanut was interfering with the child's respiration, although I could give no explanation of its trouble.

Dr. Cowling is to be congratulated on successfully extracting the peanut in his case.

Yours, etc.,

Gulgong, New South Wales, May 19, 1924. WALTER J. HULL.

COOPERATION OF MEDICAL PRACTITIONERS AND DENTISTS.

SIR: With the rapid and extensive growth of modern science, both in the medical and dental world, comes the more urgent need for a more thorough understanding and consequent cooperation beteween the members of both professions. That the increase of biological research with the resultant birth of more and more branches of science demands constant consultation of dentist and doctor to their mutual advantage must be more widely recognized.

This is the age of specialists and each specialist must admit the worth of those other branches without whose knowledge and cooperation his own sphere is of necessity limited. So long as ignorance in either branch exists of the other's department, grievous mistakes in diagnosis and treatment are liable to occur which might be avoided if a consultation were first held.

Take, for instance, the wholesome condemnation of many physicians, of dental bridge work and crowning of teeth. One frequently hears statements by doctors that bridge work and crowns are responsible for various diseases, offensive breaths *et cetera*. Naturally, so long as defective work exists in a patient's mouth, disastrous results will obtain, giving rise to those conditions of ill-health of which we hear complaints. But, properly fitting crowns, so applied that, though the cap is not forced up into the gums, yet it completly covers the tooth in such a manner as to prevent the ingress of food particles, the hygiene of the mouth can be as thoroughly preserved as in the case of the original tooth. In condemning the crown work as a universal cause of offensive breath, the physician is apt to overlook other likely causes, such as nasal discharge, incipient diseases of the stomach or lungs and his consulting a dentist as to the cause of the condition will help in eliminating the inoffensive as well as diagnosing correctly the offending matter.

Another cause of dispute between the professions not infrequently is the treatment of pyorrhœa. The wholesale extractions ordered by a great many physicians in such cases is unwarranted and unnecessary, since it has been proved beyond doubt, both in American clinics and here in Australia, that the condition is amenable to pathological treatment, resulting in new growth of healthy membranous tissue and the tightening of the bony processes. This prevents the access of fresh bacilli into the tissues which gradually assume the normal healthy appearance, while X-ray photographs prove the dissipation of any abscess formation at the roots of the teeth.

Just as necessary as the cooperation of the physician with the dentist is the consultation by the dentist with the physician before the extraction of any teeth of patients suffering from such complaints as syphilis, Vincent's infection, cancer; dentists cannot be too careful in examining the mouth for any incipient symptoms of these or other diseases and urging their clients to lose no time in consulting a physician.

The valuable assistance of the dental branch in locating the rheumatoid arthritis bacillus is only one more instance of the necessity for cooperation of the two branches, besides impressing upon the dentist the necessity of his broadening his field of diagnosis of all diseases, where early symptoms are to be found in the mouth, *exempli gratia* ulcers, abscesses, papillomata, epithelioma, malignant growths.

Such excellent work has been done during the recent war by the dental and oral branches of science, that the time has surely come when medical men must broaden their vision sufficiently to permit of their accepting their dental confrères as part of a necessary and harmonious whole and desist from the out-of-date and narrow attitude of aloofness and oftentimes contempt for our work. The dental surgeon of today ranks in his own line as much a specialist as the surgeon of any other branch of medical science and the friendly cooperation of the physician will lead to infinitely better results for both parties, besides protecting themselves and their patients from mistaken

diagnoses, which either are more liable to make alone than in consultation with the other.

Great also is the assistance of the physician to the dentist, if he will give a little of his valuable time to explain to his patients the urgency of a thorough practice of dental hygiene and the early care of children's teeth as a preventive measure against sickness.

The physician in his rôle as family doctor comes into infinitely closer touch with his patients than does the dentist, particularly in the case of children, and many a serious disease of later life would be averted, if he were to explain the value of early and regular supervision of first dention.

The oculist, too, would do well to consult with his dental confrère before ordering wholesale extractions in cases where he has reason to suppose that the particular ocular affection is due to the condition of the teeth. In many cases careful treatment of the teeth would help to clear the condition as effectually as the teeth extractions with less shock and discomfort to the patient.

The day has passed when either branch of the medical profession can safely ignore the cooperation of the other. Beyond all doubt in many cases union will prove strength, besides safeguarding the patient.

Yours, etc.,

JAMES M. WILSON.

139, Macquarie Street, Sydney,
May 3, 1924.

Post-Graduate Work.

SPECIAL POST-GRADUATE LECTURES IN MELBOURNE.

THE HONORARY SECRETARIES OF THE MELBOURNE PERMANENT COMMITTEE FOR POST-GRADUATE WORK announce that a series of weekly lectures will be held at the Walter and Eliza Hall Institute commencing on July 1, 1924, at 8.30 p.m. punctually. The fee for the course will be two guineas. Appended is a list of the lecturers and the titles of the lectures together with a short summary of the main headings under which each subject will be considered.

Lecture I.—DR. C. H. KELLAWAY: "The Physiology of Renal Secretion." The Functions of the Kidney—Its Structure and Adaptation to Function—Mechanism of Renal Secretion—Nerve Supply and its Activities.

Lecture II.—DR. C. H. KELLAWAY: "Morbid Processes in Renal Disease." The Glomerulo-Tubular Unit—Effect of Vascular and Inflammatory Changes on its Several Parts—Experimental Nephritis—Renal Secretion in Disease.

Lecture III.—DR. C. H. KELLAWAY: "The Pathological Significance of Some Symptoms." (*a*) Albuminuria; (*b*) Œdema.

Lecture IV.—DR. C. H. KELLAWAY: "The Pathological Significance of Some Symptoms" (*continued*): (*c*) High Blood Pressure; (*d*) Uræmia.

Lecture V.—DR. W. W. S. JOHNSTON, D.S.O.: "The Estimation of Renal Function." Methods of Estimation—Their Value in Diagnosis and Prognosis.

Lecture VI.—DR. R. FOWLER: "Renal Disorders in Pregnancy."

Lecture VII.—DR. A. V. M. ANDERSON: "Nephritis from a Clinical Point of View."

Obituary.

HENRY ANDERSON.

WE regret to announce the death of Dr. Henry Anderson which occurred at Sydney on May 24, 1924.

Henry Anderson was born at Ballymena, Ireland, in 1856. He became an undergraduate at the Royal University of Ireland and graduated first of all as bachelor and subsequently as master of arts. He then turned his attention to medicine and obtained the degree of doctor of medicine in 1884. After graduation he took up practice in Manchester, England, and in 1899 came to Australia. He went to Queensland and began practice at Thargomindah. Country life appealed to him and he practised in turn at Springsure, Proserpine, Harrisville, St. George and Mulaney. It was while at Mulaney that his health broke down and on this account that he was compelled in 1921 to relinquish practice. He came to Sydney, but his health did not improve and after bearing patiently his long illness he eventually died of uræmia.

Henry Anderson was a man of retiring disposition. His spare time was occupied in reading and in his earlier days he was exceedingly fond of shooting. He is survived by his widow and one son, a medical student in his fifth year at the University of Sydney.

Naval and Military.

APPOINTMENTS.

THE following appointments, changes *et cetera* have been promulgated in *Commonwealth of Australia Gazette*, Numbers 31 and 32, of May 15 and 22, 1914, respectively:

Permanent Naval Forces of the Commonwealth (Sea-Going Forces).

Transfer to Retired List—SURGEON-LIEUTENANT ROBERT AGNEW EAKIN, M.B., Ch.B., is transferred to the Retired List, dated 31st January, 1920. (That portion of Executive Minute No. 8/1920—notice of which appeared in the *Commonwealth Gazette*, No. 25, of 4th March, 1920—relating to the resignation of this officer is hereby cancelled.)

Citizen Naval Forces of the Commonwealth.

Royal Australian Naval Reserve.

Appointments—GAVIN HOLME CAMERON, M.B., Ch.M., and DAVID AUBREY ARNOT DAVIS, M.B., Ch.M., are appointed Surgeon-Lieutenants, dated 1st May, 1924; SURGEON-LIEUTENANT GAVIN HOLME CAMERON, M.B., Ch.M., is appointed District Naval Medical Officer, Queensland, dated 1st May, 1924.

Termination of Appointment—The appointment of SURGEON LIEUTENANT-COMMANDER HERBERT GRINDELL HURREY, M.B., B.S., as District Naval Medical Officer, Queensland, is terminated, dated 1st April, 1924.

Australian Military Forces.

FIRST MILITARY DISTRICT.

Australian Army Medical Corps Reserve.

HONORARY CAPTAIN D. T. KEYES is transferred to the Australian Army Medical Corps Reserve, 4th Military District, 10th May, 1924.

THIRD MILITARY DISTRICT.

Australian Army Medical Corps Reserve.

HONORARY CAPTAIN F. H. LOONEY is transferred from the Australian Army Medical Corps Reserve, 2nd Military District, 15th April, 1924.

To be Honorary Captain—JOHN HERBERT BLACKBURN, 1st May, 1924.

FOURTH MILITARY DISTRICT.

Australian Army Medical Corps.

MAJOR I. B. JOSE, M.C., is appointed from the Reserve of Officers and to be Captain, 1st March, 1924.

HONORARY CAPTAIN D. T. KEYES is transferred from the Australian Army Medical Corps Reserve, 1st Military District, 10th May, 1924.

FIFTH MILITARY DISTRICT.

Australian Army Medical Corps Reserve.

HONORARY CAPTAIN J. E. RAMSAY is retired under the provisions of Australian Military Regulation 152 (1), 26th April, 1924.

JUL 16 1924

THE MAITLAND MEMORIAL FUND.

AFTER the death of Herbert Lethington Maitland it was felt by many of those who had worked with him and for whom he had worked, that steps should be taken to perpetuate his memory in a permanent and tangible way. Those who took the matter in hand and they were many, determined that the memorial should be associated with Sydney Hospital, the institution for which he worked during many years with such whole-hearted devotion.

Australian graduates in medicine owe much to Maitland. He was the first Sydney graduate to receive an honorary surgical appointment at a metropolitan hospital. His appointment was the means of breaking down the conservative idea that men from overseas were alone suitable for such positions.

The Memorial Fund stands at present at approximately £3,500. It is thought that there are many medical practitioners who would like to be associated with this effort, but have not yet had it brought under their notice. The objective aimed at is £5,000. Donations may be forwarded direct to the Lord Mayor of Sydney, deposited in any branch in New South Wales of either the Commonwealth Bank of Australia or the Commercial Banking Company of Sydney, Limited, or sent to the Editor of THE MEDICAL JOURNAL OF AUSTRALIA.

CORRIGENDUM.

Our attention has been drawn to a typographical error in our issue of May 31, 1924. Under the caption of current comment reference is made to pregnancy and ectopic gestation. The age of the patient recorded by Mr. F. Winson Ramsay is stated as fifty-seven. This should be twenty-seven.

Books Received.

AIDS TO MEDICAL DIAGNOSIS, by Arthur Whiting, M.D.; 1924. London: Baillière, Tindall and Cox. Foolscap 8vo., pp. 185, with sixteen figures in the text. Price: 3s. 6d. net.

EAR, NOSE AND THROAT TREATMENT IN GENERAL PRACTICE, by Georges Portmann, M.D., Bordeaux; Translated and Edited by R. Scott Stevenson, M.D.; 1924. London: William Heinemann (Medical Books) Limited; Demy 8vo., pp. 186, with twenty-five figures in the text. Price: 10s. 6d. net.

ENCYCLOPÆDIA MEDICA, under the General Editorship of the late J. W. Ballantyne, M.D., C.M., F.R.C.P.E. (Volumes I. to VIII.) and Alexander Goodall, M.D., F.R.C.P.E. (Volumes IX. to XI.); Second Edition: Volume XI., *"Potassi Bromidium"* to "Singultus"; 1924. Edinburgh: W. Green and Son, Limited; Sydney: Butterworth and Company (Australia), Limited; Royal 8vo., pp. 672.

ORGANIC SUBSTANCES, SERA AND VACCINES IN PHYSIOLOGICAL THERAPEUTICS, by D. W. Carmalt Jones, M.D. (Oxon.), F.R.C.P. (London); 1924. London: William Heinemann (Medical Books) Limited; Demy 8vo., pp. 400. Price: 15s. net.

PARENCHYMATOUS KERATITIS: INTERSTITIAL KERATITIS: UVEITIS ANTERIOR, being the Gifford Edmonds Prize in Ophthalmology, by W. T. Holmes Spicer; 1924. London: George Pulman and Sons, Limited; Royal 8vo., paper cover, pp. 63, with 41 illustrations. Price: 5s. net (to subscribers to the *British Journal of Ophthalmology*, 3s. 6d. net).

THE BIOLOGY OF THE INTERNAL SECRETIONS, by Francis X. Dercum, M.D., Ph.D.; 1924. Philadelphia and London: W. B. Saunders Company; Melbourne: James Little; Post 8vo., pp. 241. Price: 14s. net.

Corrigendum.

The notice of Volumes I. and II. of "Operative Surgery," by Warren Stone Bickham, which appeared under "Books Received" on page 476 of THE MEDICAL JOURNAL OF AUSTRALIA of May 10, 1924, is annulled. The following is substituted:

OPERATIVE SURGERY. COVERING THE OPERATIVE TECHNIC INVOLVED IN THE OPERATIONS OF GENERAL AND SPECIAL SURGERY, by Warren Stone Bickham, M.D. and Phar. M. (Tulane), M.D. (Columbia), F.A.C.S.; in Six Volumes and Index Number; 1924. Philadelphia and London: W. B. Saunders Company; Melbourne: James Little; Royal 8vo.; Volume I., pp. 850, with 921 illustrations; Volume II., pp. 877, with 1,008 illustrations; Volume III., pp. 1,000, with 1,249 illustrations. Price: 50s. net each volume.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429, Strand, London, W.C.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney	Australian Natives' Association Ashfield and District Friendly Societies' Dispensary Balmain United Friendly Society's Dispensary Friendly Society Lodges at Casino Leichhardt and Petersham Dispensary Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney Marrickville United Friendly Societies' Dispensary North Sydney United Friendly Societies People's Prudential Benefit Society Phœnix Mutual Provident Society
VICTORIA: Honorary Secretary, Medical Society Hall, East Melbourne	All Institutes or Medical Dispensaries Australian Prudential Association Proprietary, Limited Mutual National Provident Club National Provident Association
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane	Brisbane United Friendly Society Institute Stannary Hills Hospital
SOUTH AUSTRALIA: Honorary Secretary, 12, North Terrace, Adelaide	Contract Practice Appointments at Renmark Contract Practice Appointments in South Australia
WESTERN AUSTRALIA: Honorary Secretary, Saint George's Terrace, Perth	All Contract Practice Appointments in Western Australia
NEW ZEALAND (WELLINGTON DIVISION): Honorary Secretary, Wellington	Friendly Society Lodges, Wellington, New Zealand

Diary for the Month.

JUNE 10.—New South Wales Branch, B.M.A.: Ethics Committee.
JUNE 11.—Melbourne Pædiatric Society.
JUNE 11.—Tasmanian Branch, B.M.A.: Branch.
JUNE 11.—Central Northern Medical Association, New South Wales.
JUNE 12.—New South Wales Branch, B.M.A.: Clinical Meeting.
JUNE 12.—Brisbane Hospital for Sick Children: Clinical Meeting.
JUNE 13.—Queensland Branch, B.M.A.: Council.
JUNE 13.—South Australian Branch, B.M.A.: Council.
JUNE 17.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
JUNE 18.—Victorian Branch, B.M.A.: Council.
JUNE 18.—Western Australian Branch, B.M.A.: Branch.
JUNE 18.—South Sydney Medical Association, New South Wales.
JUNE 24.—New South Wales Branch, B.M.A.: Medical Politics Committee; Organization and Science Committee.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to "The Editor," THE MEDICAL JOURNAL OF AUSTRALIA, B.M.A. Building, 30-34, Elizabeth Street, Sydney. (Telephone: B. 4635.)

SUBSCRIPTION RATES.—Medical students and others not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and book-sellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rates are £2 for Australia and £2 5s. abroad *per annum* payable in advance.